Indian Archaeology

1970-71

A REVIEW



INDIAN ARCHAEOLOGY 1970-71
—A REVIEW

EDITED BY

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ARCHAEOLOGICAL SURVEY OF INDIA
GOVERNMENT OF INDIA
NEW DELHI
1974

Cover:
Terracotta horse-rider from Purana Qila, New Delhi, *circa* third century B.C.



Price : Rupees Twenty-two

PRINTED AT NABA MUDRAN PRIVATE LTD, CALCU1TA-700004

PREFACE

I am happy to be able to present to the scholarly world the *Review* for 1970-71. My predecessor, Shri B. B. Lai, in his Preface to the *Review* for 1969-70 had hoped for better luck to the publication schemes of the Survey. I hope his optimism is bearing fruit and before long we shall be able to bring the *Review* up-to-date.

I am extremely thankful to all those who have supplied material for inclusion in the present Number. I would like to thank all colleagues of mine who helped me in editing the *Review* and in seeing it through the press.

New Delhi,
December 14, 1972

M. N. DESHPANDE

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INDIAN ARCHAEOLOGY 1970-71

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I. EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXCAVATION AT GOLCONDA, DISTRICT HYDERABAD.—The Department of Archaeology and Museums of the Government of Andhra Pradesh, under Shri Mohd. Abdul Waheed Khan, undertook excavation at Golconda. During the current field season, many important structures, including a mosque of the early Qutb-Shahi Period, decorated with mosaic tiles inscribed with texts from the Holy *Quran* in Kufi script, a throne room, a distillery and other buildings of the palace-complex and residential quarters, were brought to light (pl. I). Among these, the throne room and the palace-complex deserve a special mention. The hall proper, lying about 25 m. north-east of the Summer Palace and covering an area of 500 sq. m., was surrounded by a series of rooms located on the eastern and western sides. Behind the hall was a small passage with a washing place and a toilet which, in turn, was provided with a subterranean drain leading to a soakage pit covered with rectangular granite slabs (pl. HA). At the southern end of the hall was the place for the throne. In front of the hall, across a verandah, was a rectangular cistern, measuring Z\ x l£ m., with two pipes, one each for the inlet and the outlet. The entrance to the main hall, located on the eastern side, was through a small and unostentatious passage, intended perhaps to restrict the number of visitors for reasons of security. Toilet arrangements, showing elaborate sewage system, were also noticed in an annexe on the north-eastern corner of the hall.

Next in importance was the mosque which is rectangular on plan, measuring 35 X 9 m., with the *mihrab* flanked by a series of alcoves. The *mihrab* was decorated with mosaic tiles inscribed with texts from the Holy *Quran* in the Kufi script. The courtyard in front of the mosque consisted of a series of cisterns connected by conduit pipes. Among these, the central cistern was octagonal on plan.

Adjacent to the throne-room complex on the eastern side was a cistern divided by a vertical granite slab into two compartments, which possibly served as vats for fermenting liquor, etc. Besides the cistern was a platform, measuring 3-05 X 2-28 m. covered with thick lime plaster and connected with a long covered drain.

The excavation yielded: (i) a large number of sherds of the Chinese porcelain of the Ming Period; (ii) terracotta objects, including an elephant showing several small segments for burning wicks (pl. II B); and (iii) various iron objects like nails, forceps, daggers, knives, scissors, tongs, hammers, etc.

2. EXCAVATION AT HASHMATPET, DISTRICT HYDERABAD.—The Birla Archaeological and Cultural Research Institute, Hyderabad, in collaboration with the Department of Archaeology, Government of Andhra Pradesh, conducted excavation at Hashmatpet.

The work was conducted under the direction of Shri M. L. Nigam of the former institution. Out of the forty cairn-circles noticed here, two, labelled Megalith I and Megalith II, were taken up for excavation. Both these Megaliths showed, on plan, a double circle of stones, enclosing a rectangular structure of stones, with the longer axis oriented north-south.

Megalith I, which was found badly disturbed, yielded a few sherds of red ware and an indeterminate object of iron.

Megalith II, which measured 10 m. in diameter, contained a rectangular pit 4-2 X 3-25 m. in size, with an entrance on the eastern side marked by four stone slabs 3.25 m. in length and 70 cm. in height. Within the pit, which was covered with broken stone slabs, were found pottery, broken slabs, an iron sickle and fragmentary bones. The pottery obtained from this burial was the usual megalithic Black-and-red, all-black and red wares. Some of the forms included the familiar funnel-shaped lids, ring-stands, bowls and dishes.

3. EXCAVATION AT PEDDABANKUR, DISTRICT KARIMNAGAR.—The Department of Archaeology and Museums of the Government of Andhra Pradesh, under Shri Mohd. Abdul Waheed Khan *(Indian Archaeology 1968-69, A Review,*[1] p. 1), resumed excavation at Peddabankur.

The cultural sequence of the site showed a twofold division, the earlier of which related to the Megalithic period *[circa* third century B.C.) and the latter to the Satavahana period *(circa* second century B.C. to second century A.D.).

During this season's field-work, an area of approximately 2000 m. square was excavated. The excavation laid bare a huge brick structure, measuring 30-8 m. square, with its eastern, southern and northern sides fully exposed. The structure was found to be constructed over a rubble foundation. It may be recalled that during the previous season as well two structures of similar size were brought to light. Along with these structures were also found rubble foundations of houses, walls, cisterns, etc.

On the north-eastern corner inside the brick structure, was found a well 1.2 m. in diameter, constructed of wedge-shaped bricks. About 50 m. away from this well were located a cistern (pl. IIIA), 80 X 75 cm. in size, and a square basin. Another important excavated structure consisted of an oval-shaped basement of a shrine (pl. IIIB), measuring 10-36 X 7-65 m., and provided with an entrance on the northern side. Along with this structure were found several circular bases in rubble masonry which might have been used for supporting a platform for the deity. On the basis of the associated objects the shrine is assignable to *circa* third century B.C.

The antiquities obtained from the excavation included: (i) objects of iron (sickles, hoes, nails, spades, knives, chisels, rings, etc.), copper (beads and bangles) and silver (spools, used as ear-ornaments, beads and bangle pieces); (ii) gamesmen; (iii) terracotta figurines; (iv) beads of jasper, agate, carnelian and amethyst; (v) a hoard of silver punch-marked coins and several Satavahana coins in copper; and (v) a few ground stone axes.

4. EXCAVATION AND EXPLORATION AT BILLA SURGAM, DISTRICT KURNOOL.—Dr. R. V. Joshi of the Prehistory Branch of the Archaeological Survey of India,[2] assisted by Sarvashri K. V. Raman Rao and M. U. Qureshi, re-surveyed the entire cave-complex at

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[1] This publication will be referred to in the following pages by the year only.

[2] The Archaeological Survey of India is referred to in the following pages as the Survey.

Billa Surgam, and undertook trial excavation in one of the caves lying on the north or north-west wall of the gorge.

The present floor of this cave lies 5-50 m. above the dry stream-bed. Formed in limestone, the cave is 6-3 m. wide at the entrance and extends 20 m. in depth. The roof at the entrance is about 2-5 m. from the surface. Two trenches (labelled Tr-1 and Tr-2), each measuring 2 X2 m. in area, were taken up for excavation. While one of these extended down the front talus, the other was located inside the cave. Both of these trenches were dug up to a depth of 1-70 m. from the present surface. The stratification from top downwards was as follows: dark coloured loose dry earth, 6-cm. thick; soft and dry light brown earth containing a few limestone fragments and pieces of animal bones, 2.6-m. thick; dark coloured calciferous clay containing large number of stone fragments, 32-cm. thick; and red or crimson coloured marly clay 1.06-m. thick.

A few pottery fragments were found from the surface deposits, but their exact antiquity could not be determined. Among bones, a partially fossilized jaw-fragment of a rodent deserves mention. No artifacts were obtained from any of the exposed deposits. The lowest red marl was found to be sterile both archaeologically and palaeontologically. It is, however, necessary to dig through this deposit to check the presence or absence of any cultural deposit.

On the way to Kottlala village and Billa Surgam caves and within the limits of Beta-mcherala village, several tools, on dark quartzite, were found in the cultivated fields. Along with them were also a few specimens worked on chert and dark rock. The tool repertoire consists of a variety of scrapers on flakes and blade-flakes, points and a few fluted cores. A group of tools on doleritic rocks recalls the neolithic forms such as picks, adzes, axes and steep core-scrapers. Some tools were generally found to be patinated. Besides, microlithic blades and blade-cores were also found.

In the Rangapuram area, south of Betamcherala, in the fields beyond the railway line, Middle Stone Age tools, comprising scrapers, points and blade-forms and a few microlithic cores were also found.

5. EXCAVATION AT GOLLATHAGUDI, DISTRICT MAHBUBNAGAR.—With a view to ascertaining the potentiality of the site, the Department of Archaeology and Museums, Government of Andhra Pradesh, undertook a small-scale excavation at Gollathagudi. The excavation brought to light a Jaina temple which consisted of a shrine with an *ardha-mandapa* and a *mandapa.* Besides, there were four small shrines at the cardinal points of the temple showing the *panchayatana* plan. The main temple was dedicated to Vardhamana Mahavira, as evidenced by the occurrence, inside the shrine, of a mutilated sculpture of the deity seated in *ardhasana.* In addition, a standing figure in *kqyotsarga* posture and many fragments belonging to the *makara torana* were also found.

About 200 m. to the north of this site was located a unique temple dedicated to Lord Mahavira. The temple, constructed in brick, shows striking similarities with that at Bhitargaon.

6. EXCAVATION AT GAZULABANDA, DISTRICT NALGONDA.—With a view to deter mining the potentialities of the site, the Department of Archaeology and Museums, Govern ment of Andhra Pradesh, conducted a small-scale excavation at Gazulabanda. The excavation revealed the existence of a *stupa-vihara* complex showing two phases of structural activity with a marked variation in plan. In the earlier phase, the plan was simple but in the latter, it became elaborate showing a 16-spoked *stupa,* simulating the examples at

Amaravati and Nagarjunakonda. A full wing, consisting of eight cells opening into a verandah of a three-winged monastery, was also found. Besides, the plan of a *mahachaitya,* devoid of the conventional *stupa,* was also brought to light.

The finds obtained from the excavation included stucco figurines such as moulded lions, petalled lotuses, volutes, creepers, cord patterns and animal figurines such as crocodiles, *yalis,* etc. The sculptured lions carved in conventional limestone were also obtained from the excavation. The pottery consisted of a polished black ware.

ASSAM

7. EXCAVATION AT AMBARI, GAUHATI, DISTRICT KAMRUP.—A team consisting of Prof. M. C. Goswami and Dr. T. C. Sharma of the Anthropology Department of the University of Gauhati, Shri M. G. Das of the Department of Archaeology of the Government of Assam, Dr Z. D. Ansari and Dr. M. K. Dhavalikar of the Deccan College Postgraduate and Research Institute, Pune, and Shri S.K. Mukherjee of the Eastern Circle of the Survey, working under the general direction of Prof. M. C. Goswami, resumed *(1968-69,* p. 3) excavation at Ambari.

Twelve trenches were initially taken up for excavation. Due to the presence of the water-table at a depth of 1-2 m. below surface, deep digging was concentrated only in two trenches, AMB-I and AMB-II. But the natural soil could not be reached even up to a depth of 5-18 m. below surface whereupon digging had to be suspended.

Two structures, one oriented east-west (Structure A) and the other oriented north-south (Structure B) were exposed. Both of these were found to be disturbed by pits. Three other structures, the exact nature of which still remains to be known, were also found in another trench.

On the basis of pottery, four phases were determined. The lid-forms from the earliest phase show similarities with those found at Sisupalgarh and as such may belong to the early centuries of the Christian era. The pottery of Phase II consisted of bowls and vases of red, grey, buff and kaoline wares, occasionally stamped or rusticated. The characteristic pottery of Phase III was the kaolin ware, the main shapes being *lota* and bowl. On the basis of the occurrence of a few sherds of the Chinese Celadon Ware as also the C-14 determination (895±105) of a sample from the associated strata, this Phase is ascribable to *circa* seventh to thirteenth centuries A.D. Phase IV was distinguished by the use of the medieval glazed ware.

Among the terracotta objects obtained from the excavation mention may be made of: (i) a female torso belonging to Phase III; (ii) Siva *lingas* of various sizes; and (iii) a serpent figure. Other noteworthy finds consisted of stone sculptures including those of Vishnu (pl. IV C), *Siva-lingas* with octagonal base, an unidentified fragmentary male figure with a smiling face having a canopy of snake-hoods, a dancing figure of a ten-armed Siva on a bull (pl. IV D), Surya (pl. IV A) (one four-armed and two two-armed), Ganga (pl. IV B), Yamuna and a finely carved perforated window.

BIHAR

8. EXCAVATION AT CHAMPA, DISTRICT BHAGALPUR.—In continuation of the previous year's work *(1969-70,* p. 2) the Department of Ancient Indian History and Archaeology, University of Patna, under Prof. B. P. Sinha and Dr. R. C, Singh, resumed excavation at Champa.

This year's work had three main objectives to realize: (i) determining the inner slope of the mud rampart; (ii) establishing the stratigraphic relationship of the rampart with the habitation-area; and (iii) ascertaining the cultural sequence outside the rampart. With these ends in view, three extension trenches—CMP-1, CMP-1G and CMP-1H—on the western side and a fresh trench, CMP-2, outside the rampart area near Champanagar, were laid out. Besides, excavation was also continued in the last year's trenches.

Excavation on the western side revealed that the mud rampart of the second phase had a basal width of 15 m. and stood to an extant height of 4-85 m. The finds obtained from the above phase included, terracotta plaques, stone beads, bone point, cast copper coin and a terracotta sealing. The associated pottery indicated the use of the black-and-red and Northern Black Polished Wares (abbreviated in the following pages as N.B.P. Ware).

Remains of two ring-wells were found in GMP-1F and CMP-1G at a depth respectively of 4-20 m. and 5-30 m. below surface. Interestingly enough, these ring wells were found on top of the rampart indicating that the latter had fallen in disuse by that time. Belonging to the same structural phase was a brick wall of which only two courses were exposed.

Digging in trenches GMP-1G and GMP-1D, which were partly dug last year, brought to light six post-holes and a rammed brick floor. The post-holes, which were not equally-spaced, were found close to the northern section, having been dug into the top portion of the earlier rampart (Phase I). Remains of charcoal, along with broken terracotta tiles, were found in the post-holes. A number of copper cast coins and terracotta balls were found over the floor. It is also interesting to note that a clear-cut line in the floor, running east to west, was detected in the whole area of GMP-1D and GMP-1G.

At the extreme western end, in trench GMP-1H, the habitation of the Gupta period was exposed. The finds obtained from this period included terracotta human and animal figurines, terracotta pendants, sealings and cones and copper antimony rod. The associated pottery showed widely familiar forms like sprinklers, lid-cum-bowls, incense burners, handled frying pans. Noteworthy antiquities from the debris deposit, consisted of terracotta human and animal figurines, a broken figure of Vishnu and a female figure in stone of the Pala period.

Excavation in trench CMP-2 revealed three periods of occupation, of which Period I *(circa* second-first century B.C.) was characterized by the use of: (i) the N.B.P. Ware and black ware of fine fabric; (ii) terracotta figurines (pi. V A); and (iii) bone points and spindles. Period II was marked by a shoddy wall of brickbats, on southern side of which was found a brick drain. Another interesting structure of the Period was a mud-wall found in the south-eastern corner of the trench. Associated with the latter structure was an oven. Other finds (pi. V B) of the Period comprised terracotta human and animal figurines, terracotta skin rubbers, antimony rods and beads. Period III was mainly represented by a dump of loose soil, at the basal level of which some glazed sherds of the medieval period were found. The dump also yielded a coin of Queen Victoria.

9. EXCAVATION AT SONPUR, DISTRICT GAYA.—In continuation of the previous work *(1961-62,* p. 4), Shri L. A. Narain of the Directorate of Archaeology and Museums, Government of Bihar, working under the supervision of Prof. B. P. Sinha, resumed excavation at Sonpur. The excavation brought to light two cultural periods.

Period I was chalcolithic in cultural content. The inhabitants lived in houses of wattle and daub, as attested to by chunks of mud plaster having reed impressions. Their economy was largely hunting, supplemented by agriculture, as evidenced by the find of (i) a large

number of fluted cores,, points, lunates, and triangles, made of chalcedony, agate and chert; (ii) a few bone points; and (iii) the use of paddy husks in the manufacture of pottery. Besides, a few fragmentary copper implements to prove the chalcolithic affiliation were also found. The ceramic industry of the Period comprised black-and-red, as also all-black and red wares. One of the sherds of the black-and-red ware had linear paintings in white. The pottery was largely wheel-made though examples of hand-made vases were not wanting.

Period II witnessed the use of iron. The inhabitants continued living in houses of wattle and daub, but they seem to have used bigger logs as posts. A noteworthy discovery of the Period was that of a terracotta ring-well having thirty-seven rings. Although the dominant *de luxe* ceramic industry was the N.B.P. Ware, black-and-red, all-black, red and grey wares were also in vogue. The other finds from the Period included objects of iron and copper, beads of terracotta and semi-precious stones, bone points and arrowheads, terracotta figurines and punch-marked and cast coins.

10. EXCAVATION AT KANKARBAGH, PATNA.—With a view to ascertaining the archaeological significance of the remains of wooden posts, accidentally brought to light below the sub-soil water level as a result of the laying of a sewer line by the Public Health Engineering Department of the Government of Bihar in the Kankarbagh area of the Patna city, a small-scale excavation was taken up by a team, consisting of Sarvashri B. K. Thapar, M. G. Joshi, N. C. Ghosh, B. M. Pande and Jassu Ram of the Headquarters Office of the Survey. The work was taken up in collaboration with the Department of Archaeology of the Government of Bihar. Within a limited area of the cutting, the salvage excavation revealed as many as fourteen posts, arranged in four rows. The upper ends of most of the posts tapered to a tenon-like finish. In a few cases, mortises were also observed. The posts were placed 1-50 to 1-75 metres apart. On the sides, the posts were enclosed by wooden planks fixed with iron nails, making the structure into a series of boxes which were rammed with earth and thus formed the core of the fortification-wall.

On the basis of the occurrence of the N.B.P. Ware in the associated strata and the existence of similar structural remains at Bulandibagh, excavated by Spooner in 1924, it is fair to assume that the recently-exposed structure formed apart of the defences/pallisade of the Mauryan city of Pataliputra.

11. EXCAVATION AT CHIRAND, DISTRICT SARAN.—In continuation of the previous year's work *(1969-70,* p. 3), Dr. B. S. Verma of the Department of Archaeology and Museums, Government of Bihar, assisted by Shri B. K. Sinha and Shri Ajit Kumar Prasad, resumed excavation at Chirand under the general supervision of Prof. B. P. Sinha. The objective of the current year's excavation was to find out further details of the neolithic culture. With this end in view, the previous year's trenches were extended. The excavation confirmed the last year's sequence of five cultural periods.

Period I represented the neolithic culture. Notable finds of this period included: (i)bone objects (pl. VI)—pins, styluses, fragmentary needles, burnishers, scrapers and arrow-head shaped ear-ornaments; (ii) stone objects (pl. VII)—celts (two examples), a hammer, pestles and querns; (iii) beads of agate, terracotta and steatite; and (iv) microliths. The associated pottery was by and large hand-made, though a few examples, made on a turntable were also present. The pottery (pl. VIII) was represented in red, grey and black-and-red wares, most of which showed a burnished surface. Decorations included applique, incised and painted designs. While the occurrence of a large number of animals and fish

bones, including fish-scales, indicates a hunting and fishing economy, the find of charred grain provides evidence of husbandry. Structural remains of the Period consisted of floors with depressions and a series of ovens with post-holes.

Period II, which was chalcolithic in cultural content, yielded a solitary piece of copper wire (pl. XI, 5), objects of bone and stone and terracotta incised beads.

Period III was characterized by the use of the N.B.P. Ware and knowledge of iron metallurgy. An interesting find of the Period was a terracotta large-sized mask (pl. IX A) showing a fierce-looking human face with protruding teeth, bulging nose, rounded eyes and applied moustache. It was perhaps worn like a helmet. Other noteworthy objects of the period included a *'kamandalu'* in grey ware (pl. IX B) and a few terracotta objects.

Period IV, ascribable to the early centuries of the Christian era, was particularly noteworthy for the structural remains (pl. X) which comprised a square chamber, probably of a shrine, built of thick walls and an equally massive boundary-wall. An interesting object of this Period was a votive tank with three seated drummers (pl. XI, 1), beating drums in three different styles. In front of the drummers were placed seven pot-like objects.

From the deposits of Period V were obtained a fragmentary image of Tara (pl. XII) in black basalt and the foot of a lady in terracotta.

CHANDIGARH

12. EXCAVATION AT CHANDIGARH.—In December 1969, during the course of digging the foundations of a building in the shopping area of Sector 17C at Chandigarh, the remains of a Harappan cemetery were brought to light. These remains were found to be overlain by a lj-m. thick deposit of alluvium, thus forbidding any surface observation. On the basis of the position of the cemetery *vis-a-vis* the settlement area at other Harappan sites, especially at Harappa, Ropar and Kalibangan, a rough idea of the direction to which the settlement would lie could thus be determined. In the following year, another building activity in the anticipated area—this time for the construction of an underground parking space—brought forth evidence of the remains of a settlement. A small-scale excavation was, therefore, organized by the Survey in collaboration with the Department of Archaeology and Museums, Government of Punjab. The Survey was represented by Sarvashri N. C. Ghosh, J. S. Nigam, B. M. Pande and R. K. Pant, and the Department of Archaeology, Government of Punjab, by Shri S. S. Talwar.

Seven trenches, each measuring 4-25 X 4-25 m. were laid to the north-east of the cemetery area with the following objectives: (i) to obtain cultural sequence of the site; (ii) to determine the extent of the habitation; and (iii) to ascertain the specific phase of the Harappa Culture to which the settlement belongs.

The excavation indicated that the settlement lay about 100 metres to the east-north-east of the cemetery. The excavated sections (pl. XIII A) showed that below a l½-m. thick deposit of clean silt was a strata, nearly 1 ½-m. thick, which yielded pottery and other objects. Underlying the latter was a loamy deposit and natural clay.

The pottery recovered from these trenches presents a mixed assemblage. While on the one hand there are unmistakable Harappan shapes as the dish-on-stand, cup-on-stand, pointed goblet, button-base goblet, dish, beaker, lid, basin, trough, storage jar and ring-stand, including a funnel-shaped vessel, bearing an inscription in Harappan characters (pl. XIV A), as also the typical designs like the pipal leaf, and tree motif in combination with geometrical patterns, on the other are also present shapes and designs which show both pre-Harappan Kalibangan (pl. XV A) and Bara tradition (pl. XV B)

especially in incised decoration (pl. XVI A and B). These comprised a group of horizontal lines, multiple horizontal wavy lines, triangles, ladder patterns, etc. Painted designs included combinations of bi-pinnates, arched pendant triangles, rosettes, fish, etc. One of the shapes of the dish-on-stand recalls the corresponding form at Cemetery H with a deep red slip, painted in black pigment. Apart from the inscribed sherd mentioned above, two more sherds bearing typical Harappan script were obtained, one of which was a rim-fragment (pl. XIV B and C). Other finds obtained from the excavation include: (i) terracotta objects like bull figurines (pl. XVII A), beads, bangles, often painted in black, toy-cart frames, wheels (pl. XVII B), spindle-whorls, dabbers, balls (pl. XVIIIB), etc.; (ii) faience and copper bangles (pl. XIII B); (iii) beads of paste and agate; and (iv) stone querns, pestle and sling balls (pl. XVIII A).

DELHI

13. EXCAVATION AT PURANA QILA, DELHI.—The Explorations Wing of the Survey resumed *(1969-70,* p. 4) the excavation at Purana Qila for the second season. The work, as in the previous season, was directed jointly by Sarvashri B. B. Lai, B. K. Thapar and M. C. Joshi, assisted by Sarvashri K. S. Ramachandran, W. H. Siddiqi, J. S. Nigam, N. G. Ghosh, B. M. Pande and S. Banerjee. Besides the imparting of field training to the students of the School of Archaeology, this season's work had two objectives in view: (i) to expose the pre-Mauryan strata including the regular horizon of the Painted Grey Ware; and (ii) to lay bare larger areas of the already exposed cultural phases.

The excavation not only confirmed the cultural sequence (from the Mauryan to the Mughal Period) obtained during the previous season but also brought to light interesting data about each successive period. Trial digs at three different areas of the site failed to yield the regular cultural horizon of the Painted Grey Ware. Nevertheless, the occurrence of some sherds of this Ware, some of them used as hopscotches, did indicate that the regular deposits of this Ware must have existed hereabouts.

The Mauryan Period was marked by the use of the N.B.P. Ware. In the area under excavation, the deposits of this Period were found to overlie the natural soil. The structural remains were represented by (i) a series of hearths (pl. XIX A) and a burnt daub-and-wattle structure (pl. XX A), (ii) drains of baked bricks (pl. XIX B) of both rectangular (size: 44 X22 x 6 and 50 X 25 x 7 cm.) and wedge-shaped variety (size: 45 X 30 and 17 X 7 cm.), the latter perhaps intended to be used originally for the construction of a well or a similar circular structure, and (iii) houses of mud bricks (size: 25 X 20 X 6cm.). A significant feature of the Period was the occurrence of terracotta ring-wells, 75 cm. in diameter. The technique of sinking these ring-wells seems to have been as follows: an oblong pit with a narrow rounded-end was dug to the required depth; the terracotta rings were thereafter fitted one above the other towards the rounded end by a workman standing in the remaining part of the pit; after the completion of the ring-well, the pit was filled up to the brim.

Other finds of the Period comprised: (i) a fragment of a sculptured ring-stone (pl.XXIII A) associated with the mother goddess; (ii) terracotta human (pl. XXIIIB) and animal figurines; (iii) a horse-rider wearing armour: (iv) a terracotta seal reading *Seyan-karasa* and another *Svati* (?) *rakhitasa* (pl. XXIV, 1 and 2); (v) a dish of the N.B.P. Ware, showing a stamped figure of an elephant on the inner base (pl. XXIII C); and (vi) small rings and disc of banded agate.

The Sunga Period was represented by three structural phases, of which structures


PURANA QILA, DELHI
EXCAVATED STRUCTURE
(GUPTA PERIOD)
1 0 1 M.
STEPS
OVEN
STEPS
STEPS
PEDESTAL

FIG. 1

of the first two were built of quartzite rubble, set in mud mortar, and those of the third were of mud-bricks (pl. XX B) (size: 50 X 26 X 6 cm.). On one of the walls of the last-mentioned category, a patch of burnt mud plaster, indicative of burning of the structure, was also found. The floors were made of rammed earth, occasionally flagged with mud bricks. The area of two of the rooms, which were fully exposed, was 240 m. sq. and 2.50 X 2.25 m. The width of a doorway was also available at yet another point.

Amongst the notable finds of this Period mention may be made of: (i) a small spouted anthropomorphic pot (pl. XXV G); (ii) a large number of terracotta plaques (pl. XXV A) *showing yakshas, yakshis, devis, mithunas* and a female lute-player (pl. XXV B) besides animal figurines; (ill) beads; (iv) bone points; and (v) a seal and several sealings in Brahmi script, some of which read: *Patithakasa, Svatigutasa, Usasenasa, Thiyasa.* etc. (pl. XXIV, 4-7). The last one may be a transliteration of the Greek name Theos. A peculiar sealing, of which four specimens were found, bore only one Brahmi letter/w and four symbols (pl. XXIV, 3).

The Saka-Kushan Period was distinguished by the remains of regularly-built structures of baked bricks (pl. XXI). Evidence of the use of mud-bricks was not wanting. The size of two rooms, which could be exposed fully, was 1 -80 X 1 -80 and the width of doorways was 75 cm. Traces of a brick-paved floor were also noticed inside a house. The size of most of the baked bricks was the same as reported last year, the only variation being 38 X 23 X 5 cm. or 37 X 27 X 5 cm. The associated finds of the Period included: (i) sherds of stamped pottery; (ii) fragments of a votive tank; (iii) skin rubbers; (iv) terracotta figurines including an impressive human head wearing a decorated cap (pl. XXVI A); (v) a plaque showing three elephant-riders (pi. XXVI B); (vi) a small piece of an ivory handle; (vii) crucibles; and (viii) a few copper coins of the Kushans and the Yaudheyas.

The Gupta Period was represented by structural remains built of baked bricks robbed from the houses of the preceding period (pi. XXI). Of such remains, the most remarkable was a structure showing three to four phases of construction (fig. 1). Initially, the building was oblong on plan with a partition wall. Subsequently, a verandah or a room with a rounded quoin was added to the front (pl. XXII). In the third phase, floor-levels were raised, steps were provided and two longitudinal partition-walls were erected inside. A brick pedestal (height 60 cm.) with a stepped base was built against the wall on one side of the entrance. The exact purpose of the pedestal, however, could not be ascertained. During the last phase, a new verandah was added on the front side, earlier floor-levels were considerably raised and steps were added. Below the debris of the last phase were found a sealing in the Gupta Brahmi and a gold-plated coin (pl. XXVII B) of the archer type with *Sri Vikrama* legend on the reverse. The coin may belong to any of the later rulers of the main line of the Imperial Guptas. Other antiquities of the Period included: (i) a few terracotta human figurines (pl. XXVI C); (ii) a broken shell bangle with decorative carving; (iii) a small, damaged *mukha-linga* in Mathura sandstone (pl. XXVII A); (iv) moulded and painted pots; and (v) sealings (pl. XXIV, 8-10) reading *Sri Makarasya, Sri Aryyavama* (?) with a Sassanian fire altar above and *Sri Gudhadasah* bearing a set of foot-prints above.

The Post-Gupta Period was marked mainly by structural remains in baked or mud-bricks showing three phases. The baked bricks used in the structures had mostly been robbed from houses of the earlier periods. The size of mud-bricks was 30 X 24 X 4 cm. An interesting feature of the structures was the presence of various types of ovens, some resembling modern *tandoors.* Amongst noteworthy objects, mention may be made of a few decorated potsherds including a *pranala* type spout (pl. XXVII C), fragments of terracotta figurines, beads, and a fine but damaged stone sculpture.

The Rajput Period was represented by five structural phases, one of them showing floors with ovens. The principal building-material was the same as in the preceding period, with the addition of rubble. The stone enclosure or the fortification-wall, exposed in the earlier field season, was found to be very badly damaged on the east. Other important finds of the Period included a lipped jug (pl. XXVIII), containing bells, *ghunghrus* and other objects of copper, besides pieces of coral and a crystal, and a carnelian bead, high-necked jars resembling *surahi*, shallow dishes, a few fragments of carved stone tablets, and a small figure of Vishnu in stone (pl. XXIX A).

Of the Sultanate and Mughal Periods no structures could be encountered in the area under excavation. However, some interesting finds belonging to these Periods included: sherds of glazed ware; animal and human (pl. XXIX B) terracotta figurines; earthen lamps; a few pieces of Chinese porcelain of the Ming Period; and a few coins, including that of Muhammad Tughluq (A.D. 1392-1412).

GUJARAT

14. EXPLORATION IN DISTRICTS AHMADABAD, BHARUGH, KHEDA, SABAR KANTHA AND VADODARA.—The joint Cambridge-Baroda expedition, represented by the Centre for South Asian Studies, University of Cambridge, and the Department of Archaeology and Ancient History, M. S. University of Baroda, resumed its second season *(1968-69*, p. 8) of field-work in the plains of southern and central Gujarat. The members of the expedition included Dr. (Smt.) B. Allchin, Dr. K.T.M. Hegde, Shri Andrew Goudie and Kumari Statira Guzder.

Re-examination of the lower Narmada and its major tributaries, the Aswin, Karjan, Men and Orsang confirmed the presence of two clearly defined terraces. Of these, the Upper one corresponds to the general level of the surface of the plain, and has been formed by the river cutting down into the silts, of which the plain is built. The Lower Terrace is contained within the valley thus formed, and has been created by further down-cutting by the river, while its height has been raised by deposition of silt by the main river when in flood, and by the alluvial fans of streams and nullahs bringing down material from the Upper Terrace.

The lower course of the Mahi, from Itari to the Gulf of Cambay, follows much the same pattern as that of the Narmada. It has likewise two terraces which stand in the same relation to each other as those of the Narmada, and relate to the coast in a similar manner. The Upper Terrace is continuous with the silt cliff which falls away from the cultivated land of the plain to the salt marshes and tidal mud flats of the top of the Gulf of Cambay, while the Lower Terrace disappears below these, about sixteen kilometres inland. In the case of both the rivers, few settlements of any kind are found on the Lower Terrace which is not infrequently flooded. Settlements of all periods (including the historical and the modern) are frequently located near the edge of the Upper Terrace of both the rivers. Late Stone Age sites were found at points of vantage overlooking the river and the Lower Terrace. In the case of the Mahi, these are often on top of the fossil dunes which lie on the Upper Terrace.

From Hirpura to Ahmadabad, the Sabarmati shows much the same pattern as the two former rivers. Shortly below Ahmadabad, the Upper Terrace breaks down. Residual hillocks of silt, some rising to its level, are found as far south as Kamord. The plain continues towards the sea at the level of the Lower Terrace, resulting in low river banks, only about 3 m. in height, near the coast. Approaching the Gulf of Cambay, the coast-line is not so

clearly defined. An area called Bhal is formed on extremely fertile black soil, largely used today for growing wheat. This phenomenon continues from the Sabarmati estuary to about 5 km. west of the city of Cambay. The city itself stands on the silt-cliff, continuous with the Upper Terrace of the Mahi. But as one moves westwards, this is increasingly broken down by tidal creeks, until the conditions just described above prevail. North of Ahmadabad, Late Stone Age sites are associated with the Upper Terrace and with the overlying fossil dunes, while south of Ahmadabad, these are located on the residual hillocks of terrace silt mentioned above, and near the coast, on old costal dunes.

Like the terrace system, the stratigraphy of the Narmada, Mahi and Sabarmati plains is also similar to each other, *mutatis mutandis.* The deeply entrenched flow channels of the rivers and their perpendicular banks indicate recent rejuvenation of the streams. Where intact, these banks rise above the highest level reached by present floods.

During the course of field-work, various kinds of interesting sand dunes were encountered, particularly on either side of the Mahi valley and also in association with the Chota-Udaipur escarpment and its outliers. These dunes, composed of fine sand, can be classified into (i) amorphous and aligned mounds and ridges, oriented approximately south-west— north-east, and (ii) topographical sand accumulations both to the windward and the lee of hills. These dunes are all dominantly fossil features. They are deeply weathered, heavily gullied by erosion, well vegetated except when cultivated, kankarized to a considerable degree, and frequently capped by microliths. No significant accumulation of sand seems to have taken place since the Late Stone Age times. At Visadi, near Bodeli, located on a dune to the lee of the hills running towards the Orsang river, a so-called Upper Palaeolithic industry was found within the dune. This is a blade-and-burin industry made entirely in quartz and contrasts, both in scale and technique, with the microlithic industries of the region.

The most impressive dune encountered was that at Baska located to the windward of Pavagarh Hill, near Vadodara. Almost 30 m. high, it was 2-4 to 3-2 km. long. The presence of such a fossil dune indicates a marked change of climate in this area, during the Upper Palaeolithic period but coming to an end before the arrival of Late Stone Age man.

15. EXPLORATION IN DISTRICT BANAS KANTHA.—Shri R. T. Parikh of the Department of Archaeology and Ancient History of the M. S. University of Baroda carried out further exploration in the District and located a step-well at Palanpur and medieval sites at Hathiaderu, Juna Deosa, Mulan, Samarda and Vedencha Agola. At the latter sites, sherds of glazed ware and various architectural pieces and sculptures were also discovered.

16. EXPLORATION IN DISTRICT BHARUCH.—Shri K. P. Gupta of the Western Circle of the Survey found Middle and Late Stone Age sites at Dabra, Ranipura and Uman, and a medieval site at Rundigavan in Sagbara Taluk of District Bharuch. The sites are located within 5 km. from the river Tapti and are being submerged under Ukai dam project. While the Middle Stone Age tools comprise scrapers of different varieties, those of the Late Stone Age consist of scrapers, points, short blades including the backed ones.

17. EXPLORATION IN DISTRICT BHAVNAGAR, KUTCH AND SABAR KANTHA.—The Department of Archaeology, Government of Gujarat, during the course of an exploration in the above Districts discovered two Early Stone Age, two Middle Stone Age, six Late Stone Age, one protohistoric and three historical period sites. The explored sites are listed in the table below.

(ESA=Early Stone Age; MSA=Middle Stone Age; LSA=Late Stone Age; P=protohistorical and *H=historical)*

District	*Taluk*	*Village*	*Cultural horizon*
Bhavnagar	Umarala	Venghdra	ESA
Kutch	Abaddsa	Lakhapar	P
37	Anjar	Khedoi	LSA
9)	Bhuj	Dhaneti	LSA
)>	Bhuj	Madhapar	LSA;H
39	Mundra	Bhadreshwar	MSA;H
))	Nakhatrana	Lakhiyar Viyaro	ESA; MSA; H
Sabar Kantha	Khedbrahma	Unchidhanal	LSA
"	"	Padardi	J)
		Lonk	

18. EXCAVATION AT SURKOTADA, DISTRICT KUTCH.—The Excavations Branch of the Survey undertook excavation at Surkotada in Taluk Rapar. The work was directed by Shri J. P. Joshi, assisted by Dr. K. Krishna Murthy and Sarvashri K. Raghavachary, J. P. Srivastava, I. K. Sarma, A. K. Sharma, G.V.S. Rao, Arun Kumar and C. Margabandhu. The excavation brought to light remains of three cultural periods.

The earliest inhabitants of Surkotada were Harappans with some strains of an antecedant culture. The settlement was found to be fortified from the very beginning and consisted of a citadel and a lower city adjoining each other. The fortification-wall (pl. XXX) was made of mud and mud-bricks (size: 40 X 20 X 10 cm.). For the citadel part, it was on an average 7 m. in width and showed a veneer of eight to twelve courses of rubble at the base, which were plastered on the inner face. Four stages of construction, each separated by a thin whitish clay band, were recognized in this part of the fortification. At the last stage, a buttress of mud-bricks, having a width of 1-70 m. with a rubble cushioning, seems to have been added on the western side of the partition-wall separating the citadel from the lower city. On the 'lower city' side, the width of the fortification-wall .. ranged from 3-60 to 4 m. Within the walled area houses were built of rubble masonry. The pottery obtained from the associated strata showed typical Harappan forms like the Indus goblet, dish-on-stand, perforated jar, handled cup, as also characteristic Harappan painted designs like the fish-scale, pipal leaf, cranes, deer, banana trees, etc. At the same time, certain pre-Harappan designs (pl. XXXI) like the consecutive arches, wavy lines within borders, thick neck- and rim-bands, etc., were also noticed on some potsherds.

A significant feature of the Period was the occurrence, along with the Harappan pottery, of four different ceramic industries: (i) a sturdy ware with a brick-red core, quite distinct from the Harappan; (ii) polychrome ware with designs painted in purple, white and black, showing wavy lines, vertically grouped latticed arches, bands with chequered patterns, etc.; (iii) fine cream-slipped ware, bearing painted designs, showing chain or loop patterns, oblique slashes within borders, etc.; and (iv) reserved slip ware similar to that found from the earliest levels of Mohenjo-daro and Lothal. This assemblage is available only in the earlier levels represented by a 1-10-m. thick deposit. The white painted black-and-red ware was conspicuous by its absence in these levels.

The other finds of this Period included: long chert blades, some of them over 12 cm. long; beads of steatite, carnelian, lapis lazuli, faience and terracotta; rings, bangles and a spear-head, all of copper; terracotta cart-frames, cakes, bangles and toy-cart wheels; a large number of *linga-type* clay objects (probably cult objects); pestles; saddle querns; weights and sling stones; and a few bone tools.

During the succeeding period, the Harappan elements continued in a diminishing order along with a new ceramic industry. Two structural phases of rubble masonry were distinguished. The original tapering fortification-wall, separating the citadel from the residential annexe, was reduced to 6 m. in width. There was no veneer of rubble stones. The pottery of this Period comprised, besides the Harappan Ware, a dominant coarse red ware, also painted. A few sherds of the reserved slip, cream slipped and polychrome wares were also found. The other finds of the Period consisted of: terracotta bangles; beads of steatite and terracotta; chert blades; and copper objects like bangles, rings, and a flat celt, measuring 25 x 10 x 1 cm. The upper levels of this Period yielded White-painted Black-and-red Ware of the Ahar type, thus marking the coming of new folks.

Period III was characterized by a people who mostly used White-painted Black-and-red Ware. The Harappan tradition continued in a very restricted manner, as seen by a few painted sherds and fragments of perforated jars and dishes-on-stand, etc. The fresh arrivals reconstructed the citadel and the residential annexe. The fortification (pl. XXXII A), which was made of rubble, measured from 3-50 to 4 m. in width. The eastern face of the earlier fortification-wall, separating the citadel from the lower city was repaired by putting mud-bricks and rubble in the core and giving a veneer of regular courses of mud-bricks; the western face did not show this feature of repair. The fortification-wall of this Period showed two reinforcements and offsets on the western side perhaps to strengthen it against any damage from the nearby meandering nullah.

In the citadal area, remains of a street and houses were exposed.

In the lower city, the fortification-wall measured 3-4 m. in width and had a rectangular bastion (pl. XXXIIB) at the south-eastern corner. Within the residential area the excavation exposed lanes with flanking houses. In the streets were noticed open platforms in front of the houses, perhaps for sitting or for selling merchandise. A generalized house-plan consisted of a courtyard enclosed on three sides by series of rooms. The average size of a room in the excavated house measured 2-90 X 2-50 m.

The principal ceramic industry of the Period consisted of the White-painted Black-and-red Ware represented by bowls with or without carinations, including handled specimens. Significant, however, was the occurrence of channel-handled bowls in red ware, similar to those obtained from Desalpur IB period. No Lustrous Red Ware was found at the site. The other finds obtained from the deposits of this Period included: hundreds of steatite and forty-nine carnelian beads; a big terracotta painted bull; square (11 cm. sq.)

terracotta tanks; a big terracotta wheel, 15 cm. in diameter; and smaller-sized blades, made on semi-precious stones, along with a few of chert.

19. EXPLORATION IN DISTRICT PANCH MAHALS.—Shri V. H. Sonewane, a U.G.C. Scholar of the Department of Archaeology and Ancient History of the M. S. University of Baroda, during the course of his exploration in the District discovered: (i) Late Stone Age sites at Ghogamba in Baria Taluk, Panchwada in Dahod Taluk, Bhamaria in Halol Taluk, Gadhehundadi in Godhra Taluk, Chakalia in Lalod Taluk, Madhvas in Lunawada Taluk and Bhangsimala in Santrampur Taluk; (ii) temples at Gorbada in Dahod Taluk, Khodiarpura in Halol Taluk and Varuna in Santrampur Taluk; and (iii) sculptures at Jalat, Dasla and Gadoi in Dahod Taluk, Nadisar and Chanchelav in Godhra Taluk, Maleshvav, Randhikpur in Limkheda Taluk and Lilva Deva in Zalod Taluk.

20. EXCAVATION AT CHAMPANER, DISTRICT PANCH MAHALS.—The Department of Archaeology and Ancient History of the M. S. University of Baroda resumed excavation at the site under the direction of Prof. R. N. Mehta. The primary objective of this season's work was to study the lay-out of the medieval settlement. The excavation revealed the complete street-plan and habitation-pattern of the site with interesting details of office-buildings, palaces, mosques, baths, wells, etc. The walls of one of the structures in this complex were found to be painted (pl. XXXIV A and B). Among the noteworthy finds were fragments of Chinese porcelain (pl. XXXV A) some of which bore inscriptions in Devanagari (pl. XXXV B and C). On one of the step-wells was found an inscribed slab (in Sanskrit) (pl. XXXIII), describing the donation of the step-well, a mosque and a *hajra* of two plough land.

The impact of this urbanization on the surrounding settlements was evidenced by the occurrence, within a radius of about 8 km., of mining and metallurgical industries. Besides military bases, pleasure resort and country villas were also found beyond the limits of the city proper.

A detailed examination of the structural remains on the Pavagadh Hill indicated that the structure within the Atak gate up to Machi were built in the fifteenth century. An outline of the fortification-wall of the preceding period was carefully traced. It is likely that originally there were three gates, out of which only one is in use today. The structure near Khapra Kodia seems to be a guard-post of the earlier fortifications.

HARYANA

21. EXCAVATION AT RAJA KARNA KA QILA, KURUKSHETRA, DISTRICT KARNAL.—The Department of Ancient Indian History, Culture and Archaeology of the University of Kurukshetra, undertook excavation at Raja Karna ka Qila, traditionally connected with the story of the *Mahabharata.* The work was directed jointly by Dr. U. V. Singh and Shri Suraj Bhan.

A cutting, measuring 17 X 6 m., was laid out on the southern flank of the mound. The excavation revealed a 9-m. thick occupation-deposit belonging to two cultural periods, ranging in date from *circa* 400 B.C. to A.D. 300.

Period I was characterized by the use of the plain grey ware, normally associated with the N. B. P. Ware. A single sherd of the latter Ware and a few of the Painted Grey Ware were also found in the deposits of this Period. The structures, of which four phases

were identified, were made of both baked and mud-bricks. Among other finds of the Period mention may be made of a terracotta bangle and a flesh-rubber.

Period II was divisible into two Sub-periods, II A and II B. While Sub-period II A was marked by a red ware of the early Christian era, Sub-period II B was distinguished by the occurrence of the Red Polished Ware. In all, seven structural phases were encountered in this Period. Generally, mud-bricks (size: 37 X 23 X 7 cm.) were used in the construction of houses; in the upper levels the use of baked bricks of the same size was also attested. In a large room was also found a rectangular mud-brick pier which may have supported a rafter. The red ware of the Period, though mostly plain, was decorated with various stamped designs, such as *chakra, nandi-pada* and other floral motifs. The other finds of the Period included: copper coins; beads of semi-precious stones, shell and terracotta; shell bangles; terracotta objects like animal figurines, toy cart-wheels and dabbers; copper rod and blade pieces; and a variety of household objects of iron and stone.

HIMACHAL PRADESH

22. EXPLORATION IN DISTRICT KANGRA.—Shri Lalman of the Department of Ancient Indian History, Culture and Archaeology of the University of Panjab explored the following sites in the District. The explored sites are listed in the table below.
(LH=Late Harappan; PGW=Painted Grey Ware; EH=early historical pottery; GW=grey ware; EM=early medieval pottery; M=medieval pottery; LM—late medieval pottery)

Tahsil	*Name of site*	*Wares and other associated finds*
Hamirpur	Bagwara	M.M, sculptures
"	Chabutra	L.M. sculptures
"	Khurwan	EM
"	Nadaun	M & LM, sculptures
"	Pandtehri	M, sculptures
"	Raipur	LM, sculptures
"	Tauni Devi	M
Una	Bajitpur	LH, EH
"	Basoli	EM
"	Bharada Devi	LM
"	Charatgarh	PGW (one sherd), EH (copper coins) And EM
"	Diara	EH
"	Dilwan	EH
"	Mahadeo	LM, sculptures
"	Majra	EM
Una	Nagnoli	EH
"	Nangran	EH & GW
"	Rampur	M
"	Samoor Kalan	EH & GW
"	Tibbi	M
"	Udepur	GW

JAMMU AND KASHMIR

23. EXPLORATION IN DISTRICT SRINAGAR.—The discovery of stone tools in the morainic deposits near Pahalgam in the Kashmir Valley by Prof. H. D. Sankalia of the Deccan College Postgraduate and Research Institute, Pune, necessitated the re-examination of this area *(1969-70,* p. 10). Accordingly, a joint expedition, formed by Prof. H. D. Sankalia, Dr. S. N. Rajguru and Dr. Z. A. Ansari of the Deccan College, Pune, and Dr. R. V. Joshi and Shri M. U. Qureshi of the Prehistory Branch of the Survey, re-surveyed the area.

Several sections of *karewa* deposits were examined to ascertain the character of each deposit and the relation between the Lower and Upper *karewas* as also their junctions with the underlying deposits. From the stratigraphic point of view, the sections at Rambiara bridge, on way to Shopian, appeared to be the best. Here, the Lower *karewas* were found to be overlain by the second glacial conglomerate, etc. The *karewas* show tilting and enclose ash-coloured clays with plant-remains. The terraces on the *karewas* are best seen around the confluence of the Liddar with the Jhelum.

The relation between the conglomerates, moraines and interglacial clays could be understood near Krungus in the Liddar area and around Gandarbal and Woyil in the Sind Valley.

Attempts were made to resolve the sequence of moraines and the related deposits in the Liddar valley (fig. 2) both upstream and downstream of the localities in the Golf Club area near Pahalgam, which had recently yielded stone artefacts. The sections near this locality were plotted. The signs of earlier glaciation in the upstream were noticed in the form of striated rock surface and U-valley forms, besides the moraines. It is desirable to survey this entire valley and plot the various exposed deposits. Earlier, de Terra and Paterson had not carried out this work as they had done in the Sind valley. Morainic formations appear to be complex, particularly in the lower reaches of the Liddar.

The recent glacial deposits and related terraces were studied at Sonamarg.

A few chopper-type tools and scrapers were collected around Pahalgam in the Liddar valley and around Prang and Wusan in the Sind valley as also on the hill-slope on the way to Gulmarg. The interesting collection of tools, looking almost like handaxe group, were noticed in the recent glacial deposits near Sonamarg.

On way to Srinagar, between Udhampur and Srinagar, terraces were seen cut into the cones possibly of fluvioglacial deposits and some purely of fluvial origin. A few cones, dipping steeply, were noticed in the Liddar valley. It would be interesting to work out morphological map of such features as has been atempted (by Dr. R. V. Joshi and party) in the Banganga valley in Himachal Pradesh. Perhaps such study may be helpful in marking out the sequence of terraces.

The party also examined the skeleton of the mammoth, supposedly obtained by de Terra and Paterson from the *karewas,* presently housed in the store-room of the State Museum at. Srinagar. From the freshness of the bones and severe odour, this specimen does not seem to be of any antiquity, and definitely not of the *karewa* age.

KERALA

24. EXPLORATION IN DISTRICT MALAPPURAM.—Shri K. Chandrasekharan of the Southern Circle of the Survey, discovered: (i) umbrella stones *(kudai-kal)* at Alancode, Koduvayur, Melmuri, Parnundam, and Ozhur; (ii) menhirs at Ananthavoor and Tiru-

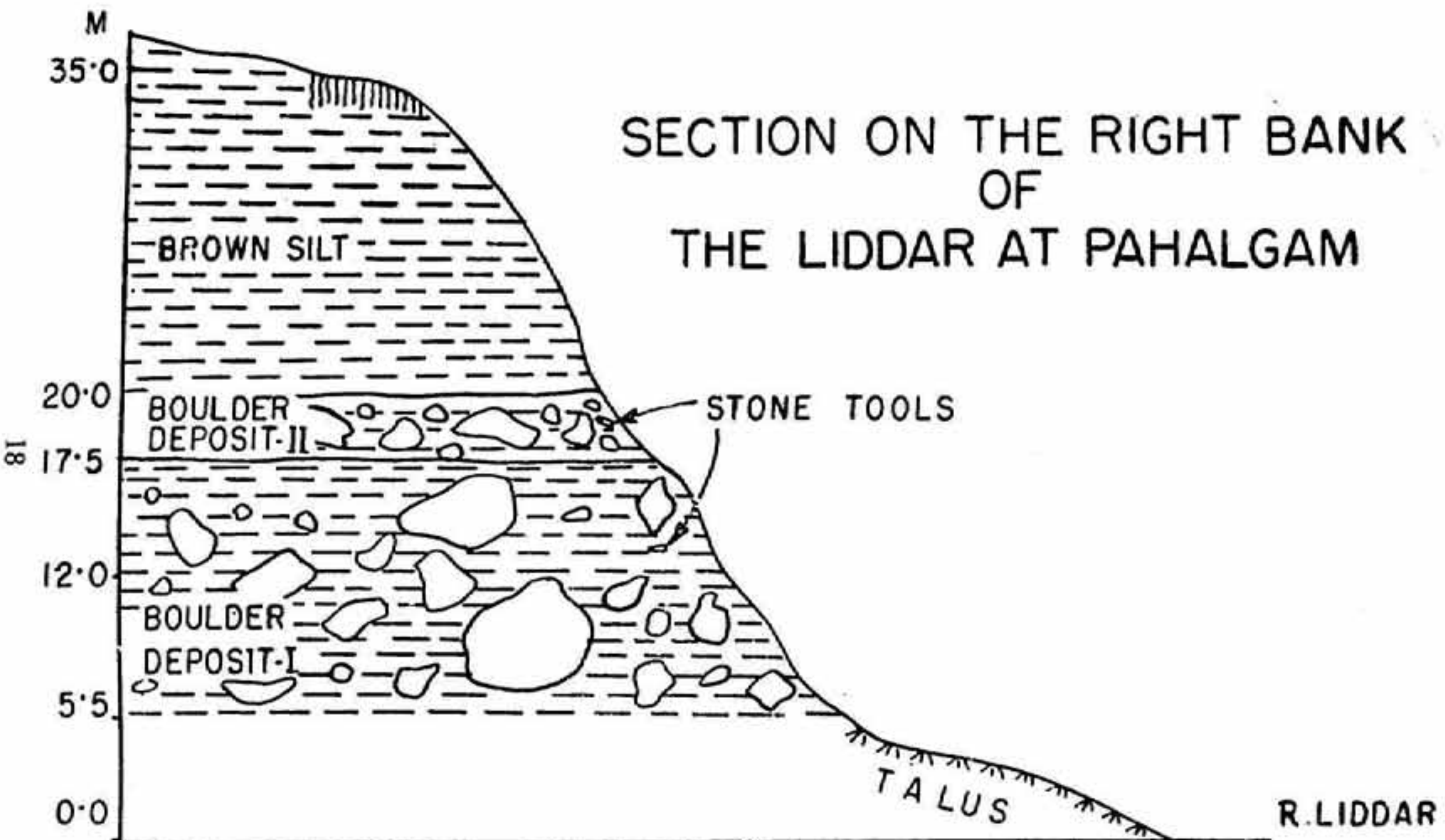

SECTION ON THE RIGHT BANK
OF
THE LIDDAR AT PAHALGAM
M
35·0
20·0
17·5
12·0
5·5
0·0
BROWN SILT
BOULDER
DEPOSIT-II
BOULDER
DEPOSIT-I
STONE TOOLS
TALUS
R.LIDDAR

Fig. 2

navaya; (iii) urn-burials at Alancode; (iv) cave, cut into laterite rock, at Kuttippala yielding a red-slipped bowl painted with Russet-coated yellow wavy lines; (v) sculptures of the medieval period, at Alathiyur, Chennara, Edayur, Kattipparuty, Marakkara, Marancherry, Niramarathur, Periyapuram, Tennala, Tirunevaya, Trikkandiyur, Tri-pangode and Veliyancode; (vi) wood-carvings at Chennara and Tirunavaya; and (vii) murals at Alathiyur, Chennara, Naduvattam, Periapuram and Tripangode.

25. EXPLORATION IN DISTRICT PALGHAT.—Shri K. Chendrasekharan of the Southern Circle of the Survey brought to light urn burials at Nagalassery and umbrella stones *(kudai-kal)* at Angadi and Kapur, besides a few cist-burials at Kapur.

He also noticed some fine sculptures of the medieval period at Anakkare, Nagalassery, Tirumittacode and Vedakkakad.

26. EXPLORATION IN DISTRICT TRICHUR.—The trial digs at various places in and around Cranganore during the previous year *(1969-70,* p. 13) had not yielded any tangible evidence relating to the second Chera empire.

In this context, the discovery in Taluk Ponnani of the so-called Russet-coated (wavy line) Painted Ware, which overlaps with the megalithic Black-and-red Ware in the early centuries of the Christian era, is of great significance. The gap between the megalithic and historical periods could thus be filled up to some extent.

While quarrying stones for construction-work, a cave was accidentally brought to light in village Vattakulam in R. S. 227/14, Kuttepalan Amson, Taluk Ponnani. On further clearance by the Department of Archaeology of the Government of Kerala, the cave was found to be rectangular on plan, measuring 2 X 1.45 m. On the eastern side, was seen a 25-cm. high bench running to a length of 90 cm. Broken pieces of pottery and a bowl painted with Russet-coated wavy lines, and iron objects were obtained from the cave.

MADHYA PRADESH

27. EXPLORATION IN DISTRICTS INDORE, RATLAM AND WEST NIMAR.—Shri V. K. Tiwari, of the Central Circle of the Survey and Shri V. S. Wakankar of the Vikram Univer sity, Ujjain, discovered a factory site of the late Achaeulian tools near Patalpani waterfalls, 8 km. south of Mhow. The tools (pl. XXXVI A and B), made either of fine-grain trap or of sandstone, consisted of cleavers, handaxes, ovates, scrapers and lance points. They also collected several Clactonian tools from the hills near Ringmodya in Tahsil Sanwer and Khajaraya in Tahsil Depalpur.

Shri Tiwari further discovered: (i) Early Stone Age tools at Bargunda, Haselpur, Rampura, Rengnodia and Yashwantnagar; (ii) Late Stone Age tools at Baroli, Chitora, Chorai, Hatunia, Jamli, Jethal and Rengnodia; (iii) ancient sites at Murkhera in Tahsil Depalpur and Dakacha, Lahagal, Pawarjunada and Simrol in Tahsil Sanwer. Of these, Lahagal and Simrol were chalcolithic sites, yielding pottery of the Malwa, Ahar and Kayatha Wares (pl. XXXVII A and B). Besides, a good number of blades and fluted cores were also found at these sites. Lahagal was explored in the company of Shri Wakankar.

Shri V. S. Wakankar discovered early Acheulian tools comprising cleavers at a site near Sailana in District Ratlam.

Shri V. S. Wakankar discovered pebble tools near Burwaha and Mortakka in District West Nimar, The artifacts were obtained from the first and second gravels.

28. EXCAVATION AT TRIPURI, DISTRICT JABALPUR.—In continuation of the previous year's work *(1968-69,* p. 11), the Department of Ancient Indian History, Culture and Archaeology of the University of Saugar resumed excavation at Tripuri. The work was conducted under the direction of Prof. K. D. Bajpai, assisted by Dr. S. K. Pandey and Shri V. D. Jha.

This year's digging was confined to the cutting TPR-7 where three structural phases of Period V *(circa* A.D. 200-600) were encountered. In the first phase, baked bricks were used. The structures met with during this phase included floors, drains and house-walls. To the second phase belonged a baked brick floor with circular depressions for keeping storage jars. Black cotton soil and brickbats were often used for the foundations of the house-walls. In the third phase, besides the brick floors and walls, remains of a drain were also exposed.

Notable finds of this season's dig included: (i) inscribed clay sealings with Brahmi legends, one of them bearing the name of the Bodhi dynasty while another had the legend *Vilavatasa* in Brahmi characters of the second century A.D., and (ii) copper coins of the Bodhi rulers. On the basis of the sealings and the coins, names of four rulers of the Bodhi dynasty are now known: Sri Bodhi, Vasu Bodhi, Siva Bodhi and Chandra Bodhi. The discovery of several inscribed coins of the Satavahanas and the Bodhis indicates that the rule of the Satavahanas in this region was followed by that of the kings of the Bodhi dynasty.

Among other finds, mention may be made of: copper antimony rods; one small pick and arrowheads of iron; terracotta gamesmen; bull figurines and flesh rubbers; beads of semi-precious stones and terracotta; and shell bangles.

29. EXPLORATION IN DISTRICT MORENA.—Dr. K. P. Nautiyal of the School of Studies in Ancient Indian History, Culture and Archaeology of the Jiwaji University, Gwalior, assisted by a team of students, consisting of Sarvashri Surya Kant, Ramakant, D. L. Rajput, Ramakant Bharati and Rajeev Dubey, conducted explorations in District.

Of the many sites explored by the party, the most promising was the one at Kutwar, situated 40 km. north-east of Gwalior, along the river Asan. The mound is nearly 1 km. in circumference and 25 m. in height. According to tradition, the site derives its name from Kunti, the mother of the Pandava brothers.

From the exposed sections of the mound, sherds of black-and-red, Painted Grey and N. B. P. Wares as also pottery of the later periods were collected. Of these, the Painted Grey Ware was found in profusion. Besides pottery, terracotta figurines, fragments of copper vessels, beads of carnelian and terracotta were also found here.

30. EXPLORATION IN DISTRICT SEHORE.—Prof. K. D. .Bajpai and Dr. S. K. Pandey of the Department of Ancient Indian History, Culture and Archaeology, University of Saugar, re-explored the sites of the ancient rock-paintings in the Bhopal area. In all, six such sites were located: Dharampuri, Gupha Mandir, Manua Bhand-ki-Tekri, Shahad Kara, Shamla Hill and T. B. Hospital.

31. EXCAVATION NEAR NAVDATOLI, DISTRICT WEST NIMAR.—An occupational floor belonging to the pebble culture was excavated by Shri Jorge Armand, a Venezuelan research student at the University of Poona. The work was conducted under the guidance of Prof. H. D. Sankalia, with assistance from Dr. R. S. Pappu, both of the Deccan College Post-graduate and Research Institute, Pune. The project was financed by the Government of Venezuela.

The site is situated in the lower portion of the Narmada valley, about 2 km. to the south-east of Navdatoli, on the banks of Durkadi nullah, a tributary of the Narmada. Artifacts were found over an area of 3 km. X 2 km. The centre of this area coincides more or less with the point of the highest concentration of artifacts found on surface, and is situated about 1.6 km. upstream from the mouth of the stream. The height of that point in relation to the bed of the present channel of the Narmada is about 15 km.

Nine trial trenches measuring 1«6 m. sq., spread over a distance of 3 km. along the banks of the stream, were taken up for excavation. Their depths varied from 30 cm. to 3-7 m. Excepting two, all of them were dug up to the bedrock. During excavation, artificial levels were marked at intervals of 10 cm. The geological and cultural particulars of each level, however, were faithfully recorded. This procedure was complemented by systematic observation of the natural sections of the Durkadi nullah and the Narmada, and by measuring the transversal profile of the Narmada's present channel with the help of a plumb. Thus, the excavation provided a detailed graph of the profile of the Durkadi nullah as also reliable information about its cultural and geological stratigraphy. The table below shows the general stratigraphy of the nullah from top downwards.

Geological layer	*Average thickness*	*Cultural remains*
Black cotton soil	60 cm.	microliths
Silt	5-60 m.	sterile
Gravel : topmost	1-7 m.	fresh and rolled pebble tools;
middle and lower		only rolled pebble tools
Basalt bed		sterile

Forty-nine soil samples from the sections at Durkadi nullah, the Narmada and the neighbouring streams were collected in order to study the regional palaeo-environment and its evolution. Besides, another trial trench was made on the central part of the site in order to know the origin of the Durkadi nullah gravel. Here, the entire gravel was dug up to the basalt bed, and all the pebbles were classified and counted according to their raw material, shape and size. Samples of the coarse sand, found in between the pebbles, were also taken for granulometrical and morphological analyses.

Nearly 1,100 Early Stone Age artifacts were collected during the present operation. Of these, about nine hundred came from surface collection and two hundred from different trenches. Artifacts of the former class, however, showed the same cultural horizon as those of the latter and, except for a few examples (about 5%), made of different raw material and smaller in size, all had the same morphological and technological general appearance.

The tool kit was basically made up of choppers, both unifacial and bifacial, big and small side-scrapers, some rare discoids, scrapers made on flat pebble, a lot of unworked flakes and chips, and a relatively large number of cores, both on pebble and on flake.

The presence of a large number of cores and unworked flakes on the site proves that Durkadi was mainly a factory site. Furthermore, the concentration of artifacts in some parts of the site indicates that while a part of the site was used for the preparation of tools, the immediate surrounding area was the scene of other types of activity, such as hunting, gathering or habitation.

All the fresh artifacts were found *only* on the topmost part of the gravel, while the rolled examples were found either on the topmost part of the gravel or within the gravel itself. It was also observed that irrespective of stratigraphic position, the fresh artifacts were represented in larger percentage as compared to the rolled ones.

The existence of an important group of fresh artifacts, exclusively on the topmost part of the gravel, could only be explained by their remaining undisturbed on the floor where they were made and used and being sealed and protected by the overlying silt. The rolled artifacts are of an older material which was carried to Durkadi through the nullah.

In the light of these observations, a horizontal excavation was considered necessary for reconstructing the cultural behaviour of Durkadi's hominids. Another trench was, therefore, laid out wherein an ancient floor of 6 m. sq. was exposed. Sixty artifacts, including four cores were found resting on the topmost part of the gravel. A number of fluvial mollusk shells and some minerals were found associated with the artifacts.

MAHARASHTRA

. 32. EXPLORATION IN DISTRICT CHANDRAPUR.—In continuation of his previous explora- tion in Taluks Garhchiroli and Warora *(1969-70,* p. 22), Shri B.K. Sinha of the South-eastern Circle of the Survey noticed in Taluk Garhchiroli (pl. XXXVIII): (i) two Early Stone Age sites on the river Wainganga and its tributaries at Chandala and Tumarguda and Late Stone Age sites at Dosi, Dongar Goan, Garhchiroli, Kaneri, Karpara, Kuthe Goan, Mohtola Murkhala and Pulkhal. Of the sites mentioned above, Dosi, Kaneri and Karpara also yielded several microliths made on chert, jasper, chalcedony and agate, some having also secondary working or retouch. The tool types (pl. XXXVIII) represented are triangles! crescents lunates crescentic points, single trimmed points, scrapers, backed blades, simple flake awls, tanged points, hollow scrapers and burins. No other associated finds including pottery were obtained from this area.

In Taluk Warora, he collected Early Stone Age tools (pl.XXXIX) at Ghosri, Khut-wanda, Mandholi, and Tamsi. At Khutwanda and Tokkum he also collected Late Stone Age tools.

Shri K. Venkateswara Rao of the same Circle of the Survey found Early and Late Stone Age sites at Bhari Pudiyalmohda, Kargoan and Kodepur in Taluk Rajura.

33. EXPLORATION IN DISTRICT KOLABA.-Shri B. P. Bopardikar of the Prehistory Branch of the Survey further explored (1969-70, p. 23) the Savitri river between Mahad and Poladpur and brought to light Early Stone Age sites at Parale and Wakoli, which yielded unifacial choppers on trap.

At Parale, the section on the left bank of the Savitri showed the following succession (from bottom upwards): bed-rock, 2.40-m. thick bouldary bed; 1.80-m.thick red clay and sandy gravel; 1.50m. thick laterite gravel. Choppers were collected from the partially eroded gullies.

At Wakoli, the river section consisted of the bed-rock overlain by a 4 to 6.m. thick pebble bed, coarse at the bottom, and with ledges of red silt and fine sandy gravel.

34. EXCAVATION AT PACHAD, DISTRICT KOLABA.-In continuation of the last year’s excavation (1969-70, p.23), Shri B.P. Bopardikar, assisted by Sarvashri P.R.K. Prasad, B.U. Sarma and K.V. Rao, all of the Prehistory Branch of the Survey, undertook further

excavation at Pachad with a view to correlating the pottery-bearing deposit and the Late Stone Age horizon.

Two trenches, 1-5 X 1-5 m. each, were laid out, one near the northern entrance and the other inside the eastern end of the cave, in alignment with the last year's trenches. The deposit near the facade of the cave was found to be more compact and less disturbed.

The section in the outer trench revealed the following strata (from surface downwards): about 10 cm. loose, ashy brown earth mixed with small weathered blocks of trap; light brown earth mixed with rock rubble, up to 60 cm. from surface; and an uneven compact brown earth resting on the sloping bed-rock, reached at about 80 cm. The finds obtained from the uppermost deposit included few microliths, pottery bones of small animals and charcoal bits and ash. From the intermediate stratum were found a large number of potsherds, microliths, iron arrowheads, small bones, and charcoal bits. The lowest deposit yielded very little pottery but contained a greater quantity of microliths, consisting of points, blades, flakes, fluted cores and hammer stones. Most of the tools were retouched.

The trench taken towards the eastern end did not yield many antiquities. The exposed section, up to 20 cm. from the present surface, is composed of ashy brown earth yielding very few microliths, pottery, and charcoal bits. Below this, the soil was yellowish brown and compact. Between 55 cm. to 1 m. the strata was completely sterile and contained large blocks of cave-fall and boulders.

35. EXPLORATION AND EXCAVATION IN DISTRICTS PARBHANI AND NANDED.—Shri S. N. Raghunath, assisted by Shri P. K. Roy and Shri E. R. Sathe of the Prehistory Branch of the Survey, carried out exploration and limited excavation in the Bhategaon-Tamsa range of the Marathwada region. The exploration brought to light sites of Middle and Late Stone Ages, respectively at 1,500 ft. (approx. 457 m.) and 1300 ft. (approx. 396 m.) contour. The explored sites are listed below.

{MSA=Middle Stone Age ; LSA=Late Stone Age)

District	*Contour*	*Site*	*Cultural horizon*
Nanded	1500 ft. (approx. 457 m.)	Mahur	MSA
	“	Tamsa	”
	1300 ft.	Piparla	LSA
Parbhani	(approx. 396 m.)		
	“	Waranga	“
	“ “”	Warudsawala	5)
	1500 ft. (approx. 457 m.)	Dabris	MSA
	“	Dongarkada	“
		Palsa	“
	″	Upper Dutta Buldi	”
	1300 ft. (approx. 396 m.)	Bhategaon	LSA
	“	Lower Dutta Buldi	“

The excavation at Dongarkada in District Parbhani showed a suspected habitation site belonging to the Middle Stone Age. Four trenches were taken up in different parts of the site. In each of these trenches remains of floors, made up of small-sized rubble and soil, were found. Interestingly enough, one of the floors had a 30 cm. thick deposit of ash resulting from the use of fire at the site.

36. EXPLORATION IN DISTRICT NAGPUR.—Shri Lai Chand Singh of the Central Circle of the Survey during the course of his exploration in the District discovered: (i) Late Stone Age Site at Gawasi (now Ashokaban); (ii) megalithic stone circles at Amgaon, Badegaon, Chicholi, Deoli, Hingna-Kinhi, Nagaiwari, Raipur-Hingna, Sonegaon, Sukali-Takali; and (iii) a Hamadpanthi temple at Kothulna.

The Department of Ancient Indian History, Culture and Archaeology, under Prof. S. B. Deo' discovered Buddhist rock-cut caves in the Chandala forest, near Mandhal, about 64 km. south of Nagpur. The cave-mouth is now completely shut off because of the fall of the rock debris. Just near the entrance, two inscriptions (pl. XL A) were found. One of these consists of two lines recording the gift of Apale, son of Vandalaka. The palaeography of the record helps to date it to *circa* second century B.C. It may be recalled in this context that Pauni is about 25 km. from Chandala, as the crow flies.

At Mandhal, about 10 km. to the south-west of Chandala, was discovered an inconspicuous mound which yielded, on surface exploration, coins of Maharathis, black-and-red ware and remains of brick structures and soakage wells of the historical period.

37. EXCAVATION AT MAHURJHARI, DISTRICT NAGPUR.—The Department of Ancient Indian History, Culture and Archaeology, University of Nagpur, undertook excavation at Mahurjhari, under the direction of Prof. S. B. Deo. Mahurjhari, which lies about 15 km. south of Nagpur, was known to contain numerous stone-circles (pl. XL B), almost in continuation of those at Junapani *(1961-62*, p. 32).

With a view to correlating their material culture with Khapa on the one hand and the painted pottery tradition on the other, as many as seven stone-circles, situated at three different localities, were taken up for excavation. Two of these were situated on the Raja's Tekdi, two nearby an ancient nullah and the remaining three about 600 m. away from the first two localities.

The stone-circles ranged between 7-96 and 17 m. in diameter. Some of these (Megs. I and II) were double circles on plan. The filling in all cases, however, consisted of three distinct deposits consisting (from top downwards) of pebbles, reddish *murum* and black soil. In the case of five stone-circles, the peripheral stones bore a variety of cup-marks.

The material equipment presented by these stone-circles was more or less similar, save for the fact that three of the seven stone-circles contained gold ornaments in the form of spirals, circular leaf-like pieces with peripheral perforations and thin sheets.

No grave-pits were encountered in any of these circles. While most of the funerary objects were found in the filling of black clay and *murum*, in six stone circles (one being empty), four to six pots of micaceous red ware were found placed right on the natural *murum*. These pots were placed close to one another, but did not contain anything except burnt earth and fragmentary human teeth.

The pottery comprised three wares, micaceous red, black-and-red and coarse red. Of these, the micaceous red ware, as at Takalghat and Khapa, was the most dominant ceramic industry, followed by the coarse red. The black-and-red, though invariably present in all the circles, was very much restricted in use. The micaceous red ware seems to have

been ill-fired, the main shapes represented being globular pots with flared mouth and shallow dishes or covers. Some of the pots also bore linear paintings in black (pi. XLI A). The shapes met with in the black-and-red ware consisted of bowls and dishes, including a few perforated examples of the former type and stems of stands. The coarse red ware was represented mostly by utilitarian shapes like basins, dishes, spouted pots and globular pots.

The iron objects (pi. XLI B) found in the stone circles comprised chisels, daggers, axes, lamps and ladles, while those of copper consisted of bells with iron tongue, bangles and a series of thin decorated pieces of sheets which were utilised possibly as ornaments around the neck of a horse. Other finds included a number of nail-parers and etched . carnelian beads.

38. EXCAVATION AT INAMGAON, DISTRICT PUNE.—The Deccan College Postgraduate and Research Institute, Pune, resumed excavation *(1969-70,* p. 25) at Inamgaon. The work was conducted under the general guidance of Prof. H. D. Sankalia, Dr. Z. D. Ansari, and Dr. M. K. Dhavalikar with assistance from Sarvashri Y. S. Rasar, C. G. Padwal, R. B. Sapre, V. K. Nagpure and M. G. Abhyankar.

The main objective of this season's dig was to expose houses of the Jorwe (Northern Deccan Chalcolithic Culture, *circa* 1300-1000 B.C.) and the Malwa (Central Indian Chalco-lithic Culture, *circa* 1600-1300 B.C.) Cultures. Three houses belonging to the latter Culture were exposed. Of these, one was represented by a large rectangular floor made of pebbles and rammed black clay while the remaining two showed sunken floors. They were rather shallow pit-dwellings (pi. XLII A), circular on plan, measuring about 2 m. in diameter. The floor was nicely plastered with clay and lime. In one of the sunken floors was encountered a twin urn-burial which so far had been thought to be a distinguishing feature of the Jorwe Culture alone.

In the early Jorwe levels, eight houses were exposed. All of them were rectangular on plan, in sharp contrast to the circular houses of the late Jorwe levels. The former were also considerably large in size. The biggest house measured about 8-50 m. in length and 3-30 m. in width. The houses had dwarf walls with rounded corners; the roofs seem to have been supported by wooden posts, of which remains have been found within the walls as also on the floors inside the house. Some of the houses had well-defined courtyards. In one case, evidence of an elaborate arrangement for draining out rain-water was also available. On the exterior of the walls, lumps of clay were added to form an easy slope from where rain water was diverted into a deeply-cut channel on the ground.

Inside the houses (pi. XLIII), there were successive levels of floorings, indicating that the floors were repaired quite frequently. In many houses, twin-urn and extended-burials were encountered. It appears that after the burials, the houses were temporarily abandoned and later re-occcupied.

The antiquities found from a house (no. 38) included two dough plates (hand-made), two storage jars (hand-made), twelve red grey ware urns with flaring mouth, twenty-two *kundas* (red-grey ware), one large *kunda* (complete), one lid, eight early Jorwe spouted vessels, twenty-seven concave-sided carinated bowls, fifteen high-necked jars (Jorwe ware), two small high-necked jars (Jorwe ware), ten globular jars with constricted neck (Jorwe ware), one *kunda* with flat base (Jorwe ware), one spindle whorl and seven rubber stones.

The settlement appears to have been fortified. The remains of what looks like a fortification-wall, built of unhewn stones, set in mud mortar, were noticed on the western periphery of the cuttings INM-I and INM-IV. Besides, remains of an embankment (on an average 3 m. in width) were also discovered to the west of cutting INM-V. The embank-

ment was constructed of boulders set in mud mortar. The embankment appears to have been constructed with a view to protecting the settlement from the floods in the river. The

flood water was diverted in a roughly north-south direction. It may be noted that the ancient river channel is even now seen running close and parallel to the embankment.

The cultural equipment of the Jorwe people as also of the Malwa was found to be the same as known from other sites. A noteworthy addition, however, was that of a number of copper bangles (pl. XLII B) and anklets, bearing incised patterns. The most significant find of the season was a clay receptacle, containing a Mother Goddess figurine (pl. XLIV A), obtained from a house belonging to the earlier phases of the Jorwe Culture. The receptacle along with a bull figurine (pl. XLIV B), also of unbaked clay, was found deposited in what first appeared to be a post-hole. It appears that the occupants of the house had left the premises and did not return back. Even today the people in western India keep the deities in boxes when they go away.

39. EXPLORATION IN DISTRICT RATNAGIRI.—In the course of an exploration in the Konkan region, Dr. (Smt.) Shobhana Gokhale of the Deccan College Postgraduate and Research Institute, Pune, with the assistance of Dr. S. N. Rajaguru, Dr. R. S. Pappu and Kumari Statira Guzder, discovered fourteen Brahmanical caves at Panhale in Taluk Dapoli. Of these, twelve were found to have been filled with river silt and the remaining two show carvings on the ceiling, depicting scenes from the *Ramayana.* The whole excavation probably belongs to the Silahara period, *circa* A.D. 1100-1200. On the top of the caves were noticed remains of the foundations of a fort.

The above team, working in collaboration with Shri Rege of the Department of Archaeology of the Government of Maharashtra, also carried out exploration along the coastal margin of the District, surveying the coast for collecting further evidence of Stone Age remains and related Pleistocene geomorphic features. In the course of the exploration two Stone Age sites were discovered near Malvan.

The Early Stone Age site at Hadi was located at the confluence of a south-north flowing stream with the God River which meets the Kalavli creek about 2-5 km. from the open sea. There is an outcrop of Kaladgi quartzite here, beside which a number of artifacts of the Early Stone Age were collected. Most of the tools were found to be fresh, with a slight ferruginous staining on the surface. The assemblage consists of cores, choppers, hollow scrapers and flakes. Further exploration of the 16-m. terrace above the flood-plain led to the discovery of a large, squarish quartzite core (25 X 25 cm.) and several more flakes.

The second site was located in the bed of a nullah near the village of Salel, about 12 km. from Malvan town on the main road to Rajapur. The average height of this plateau is 115 m. above sea level. The low banks of the nullah consist of laterite pellets and lateritic clay. The artifacts consisted mainly of unrolled flakes of Early Stone Age with heavy ferruginous staining on their surface. A biface from the collection was found to be deeply lateri-tized. The majority of the remaining artifacts were scrapers and flakes, which, from a technological view-point, bear a close relationship to the Middle Stone Age tools.

Geological information regarding land and sea relationship was also collected. The widespread occurrence of beach-rock (previously reported from Gujarat, Bombay and Ratnagiri) was observed during these explorations in District Kolaba at Chawl, Korlai-Borlai, Mandwa and Shrivardhan. At present, radiocarbon dates for beach rock from the Konkan suggest an age somewhere during the mid-Holocene period for an eustatic rise

in the sea-level along this stretch of the west coast of India, with a further possible minor transgression during the early historical period.

40. EXCAVATION AT HATHKHAMBA, DISTRICT RATNAGIRI.—In pursuance of the last year's discovery of a cave site at Hathkhamba *(1969-70,* p. 29), Shri B. P. Bopardikar, assisted by Shri B. U. Sarma and Shri K. V. Rao, and working under the general guidance of Dr. R. V. Joshi, all of the Prehistory Branch of the Survey, undertook trial excavation at the site. Four trenches, measuring 1-5 X 1-5 m. each, were taken up at different levels on the front slope of the projecting shelter. No trench was taken inside the cave.

The generalized section of the four trenches consists of (from bottom upwards): bedrock of weathered blocks of laterite, unevenly spread at the bottom; lateritic gravel with pebbles of chalcedony, chert and other secondary minerals, including a few of quart-zite; reddish brown earth slightly loose at places, mixed with weathered blocks of laterite; loose earth mixed with few charcoal bits and rock fragments. The maximum depth reached in the trenches was 1-20 m. and the minimum 60 cm.

At all the levels, both finished and unfinished microliths were collected along with waste flakes, nodules of chalcedony, chert and other secondary minerals. The raw material, including quartzite pebbles, seem to have been brought from a distance. The tools consisted of fine points, worked along one or both the margins, crescentic points, few borers, blades and bladelets, very few scrapers, flakes and cores. The proportion of cores, however, is very little. No pottery or any other finds were associated with the microliths.

MEGHALAYA

41. EXPLORATION IN DISTRICT GARO HILLS.—In continuation of the previous work *(1969-70,* p. 1), the Department of Anthropology, University of Gauhati, further explored some parts of the District. The party consisted of Prof. M. C. Goswami, Dr. T. C. Sharma, Shri H. C. Sharma, Shri S. K. Roy and other post-graduate students. Early Stone Age tools, in proper stratigraphical sequence, were discovered along the river valleys of the Rongram, Simsang, Ganel and their tributaries, Selbal, Waram, etc. Noteworthy sites, however, included Rambhagiri, located on the left bank of the river Simsang and Cibragir's, situated on the bank of the river Rongram. The latter site yielded tools of both Early and Middle Stone Ages.

Other explored sites included, Michimagiri-I, Michimagiri-II and Michimagiri-III, Rongram-2, Selbalgiri-3, and Thebbrongiri which yielded tools of Early, Middle and Late Stone Ages.

MYSORE

42. EXPLORATION IN DISTRICT BANGALORE.—Shri C. Krishnamurthy of the Southern Circle of the Survey, brought to light a Late Stone Age site at Managondanahalli in Taluk Devanahalli, yielding scrapers, blades and flakes on quartz and rock-crystal.

43. EXPLORATION IN DISTRICT KOLAR.—Shri C. Krishnamurthy of the Southern Circle of the Survey located a neolithic site at Hunugund in Taluk Bangarapet, yielding hand-made burnished grey and red wares. Besides, megalithic Black-and-red, all-black and red wares, rubbers and sling balls belonging to later periods, were also found. In the same Taluk, he discovered two extensive mounds yielding megalithic Black-and-red Ware

BANAVASI, MYSORE: BRICK CHAITYA

METRES 0 2 4 6 8 10



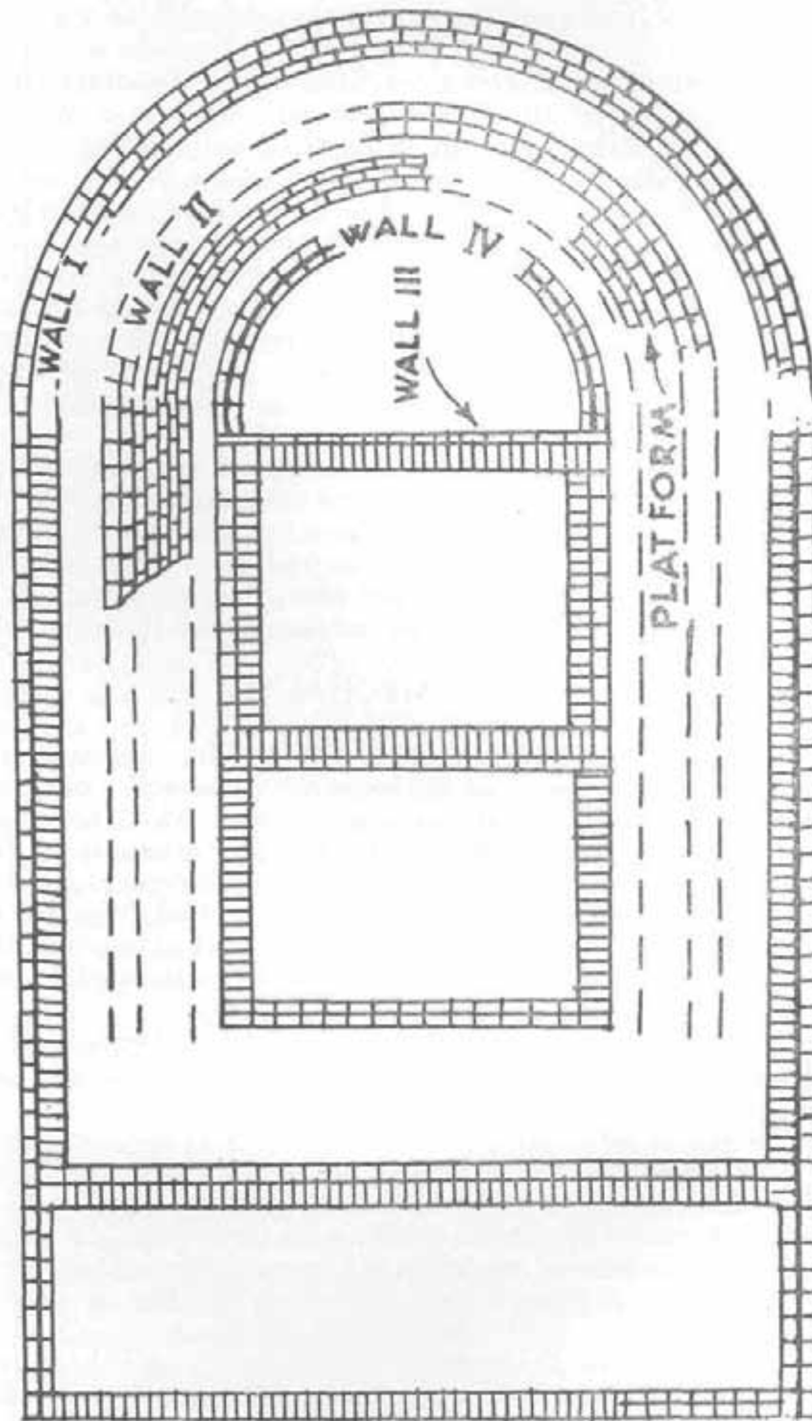


Fig. 3

and red ware at Kirmanda and Hunugundpet and megalithic stone-circles, with or without cairn packing, at Badamakanahalli, Doddur, Dodparandhalli, Gajaga, Godagmande, Goravanhalli, Gutlur, Hoshahalli, Hunukund, Kanamahalli, Kannumbele, Kodanhalli, Kottur, Kundrasanhalli, Peddakalvanchi, Ramana-Yakanahalli, Ramapuradadinne, Srirangabandahalli, Surnahalli, Tamatmakanhalli, Topanhalli, Ukkunda, Upaspur, Vadrahalli, Vobhahalli and Vengasandra.

44. EXCAVATION AT BANAVASI, DISTRICT NORTH KANARA.—With a view to finding out the cultural sequence of the site, the Department of Ancient History and Archaeology, University of Mysore, in collaboration with the State Department of Archaeology, conducted excavation at Banavasi, one of the early capital-cities of Karnataka, from where a number of coin-hoards had earlier been reported. Some of the coins of the Chutukulananda and Mulananda as also the well-known potin type of Yajnasri are in the collection of Shri Wodeyar of Banavasi.

The ancient site, probably visited by Hiuen Tsang in the seventh century A.D., rises some four metres from the surrounding plains, and is enclosed by a fortification-wall, constructed of large-sized baked bricks (size: 40 X 8 cm.). The fortifications were found to be surrounded by a deep moat on three sides and the river Varada on the fourth. Two phases of repair, represented respectively by the use of brickbats and large-sized blocks of laterite, were noticed in this defensive structure.

Apart from the above feature, the site contains a number of mounds located to the south-west and north of Madhukesvara temple. One of these, locally known as 'Donigudda' (boat mound), is being cut away for obtaining earth for the construction of a road-bridge across the river Varada. A cutting, labelled BNV-1, was laid out at this mound. The cutting, which measured 12 X 7 m. was dug up to the natural soil. The excavation revealed parallel-running walls, about half a metre apart, and with apsidal end. Half a metre away to its south, was also found a small portion of a square platform, built of baked bricks (size: 43 X 22 X 7 cm.). Large quantities of terracotta floor-tiles were found from the floor-level of this structure. The structure (pls. XLV and XLVI) appears to be an apsidal temple or a *chaitya* (fig. 3). Traditionally, the mound contained a *chaitya,* the existence of which was mentioned by Hiuen Tsang.

In another cutting, called BNV-2, the lower levels yielded sherds of the Russet-coated Painted (pl. XLVII A), imitation Rouletted (pl. XLVII B) and Black-and-red Wares.

A third cutting, BNV-3, measuring 5 X 5 m., was taken up about 91-44 metres to the north of the Jaina temple inside the fortifications. A small area of 2 X 2 m. was dug here to the natural soil, exposing a stratigraphy almost similar to that of BNV-2.

Some 90 m. to the north-west of BNV-3 and adjacent to the brick fortification, were noticed remains of an ancient temple in the form of a Siva *linga* pedestal. On digging this area, where a part of a granite stone pillar was standing above the ground, it was found that the pillar was square in section and contained a fragmentary inscription in box-headed Brahmi characters. The inscription represents the first find of a Kadamba inscription at Banavasi proper, mentioning the names of Kakuthsavarman, Santivarman and Mrige-savarman of the Kadamba dynasty, and refers to what seems to be a victory over the Pallavas for Mrigesavarman.

ORISSA

45. EXPLORATION IN DISTRICTS BALASORE, CUTTACK, DHENKANAL, GANJAM, KORAPUT, MAYURBHANJ AND PURI.—During the course of the exploration of the Prachi valley, the

Department of Archaeology, Government of Orissa, found a large number of sculptures and temples at the following sites: Ajodhya, Kaupur and Martasal in District Balasore; Baleswar, Hazipur, Ganeswarpur, Kurangasassan, Pallijanta and Patapur in District Guttack; Talmul in District Dhenkanal; Brahmana Chhai in District Ganjam; hilly areas in Theruvali in District Koraput; Attamundi, Kuliana and Tingiria in District Mayur-bhanj, and Ameresvara, Asurdipa, Bankada, Birajai, Chandeswar, Chaurashi, Chahata, Denua, Gramesvara, Neelakanthesvara, Punjiyama, Nuapatna and Thakarupatna in District Puri.

46. EXCAVATION AT SISUPALGARH, DISTRICT PURI.—The Department of Archaeology, Government of Orissa, under Shri A. Joshi, assisted by Shri P. K. Ray, conducted a small-scale excavation at Sisupalgarh with a view to revealing structural details of the northern gateway of the fort. Four trenches were taken up on the eastern side of the gateway.

The excavation revealed two structural phases of the defence-wall: the first phase showed the use of laterite blocks, exposed to a height of 3-3 m., the lower four courses being set in a stepped fashion; the second phase represented a repair-work carried out in baked bricks (size: 35 X 24 X 10 cm.). The use of baked bricks in the construction of the fortifications was brought to light for the first time. From the associated levels, two Puri-Kushan copper coins were recovered, making it possible to date the brick phase of the fortification to *circa* third-fourth century A.D. Other finds obtained from the excavation included: sherds of Rouletted Ware; iron objects; and one copper alloy coin (unidentified).

PUNJAB

47. EXCAVATION AT SANGHOL, DISTRICT LUDHIANA.—In continuation of the previous season's work *(1969-70*, p. 31), the Department of Archaeology and Museums, Government of Punjab, under Shri S. S. Talwar, assisted by Shri R. S. Bisht, resumed excavation at Sanghol. The objectives of the excavation were as follows: first, to know more details about the remains of the Late Harappan Culture; secondly, to trace the outline of the fortifications as also to ascertain its stratigraphic relationship with the habitation area; thirdly, to locate the deposits of the medieval period, the existence of which is hinted by surface collection; and fourthly, to ascertain the nature of the small apsidal mound, situated near the northern corner-tower of the fort.

During this field-season, the work was confined to cuttings SGL-2 and SGL-3 only. While the former confirmed the earlier known culture-sequence, the latter provided interesting evidence of a fortification-system which finds literary corroboration in Kautilya's *Arthasastra* and in the commentary on the *Udaya Jataka.*

Of Period I (Late Harappa Culture) three, if not four, structural phases were distinguished in the 1-m. thick deposit. The walls were made of mud and mud-bricks, the latter, however, being of irregular shape. The occurrence of pottery, akin to that from Cemetery H, as also of clay bins from the mid-level upwards was further confirmed.

Among the structural remains belonging to Period II (Painted Grey Ware complex), was a pit containing a deposit of animal bones (pl. XLVIII A). The pit was marked by a series of post-holes at its top.

The defence-complex, which belongs to Period VI of the site (second half of the first century to fifth century A.D.), consisted of a series of three moats, one outside the rampart (pl. XLVIII B) and the other two inside it. It seems that the earth obtained by digging the moats was utilized in building the rampart and the berm. It was observed that while the

sloping sides of the two major moats sustained erosion marks, those of the third are sharply maintained with a horizontal base, indicating perhaps that the latter was never filled with water.

The previous recorded back of the fortification-wall was found to continue further down to form the side of the inner Moat-1 which, interestingly enough, contained *inter alia* refuse deposit. A number of sealings, human figurines, bun-shaped iron ingots(?) and iron slags were collected from the upper strata of the deposit within the inner Moat-2. No deposits of the late medieval period, however, were met with in this season's excavation.

RAJASTHAN

48. EXPLORATION IN DISTRICTS BHARATPUR, BHILWARA, JAIPUR AND JHALAWAR.—During the course of exploration in these Districts, the Department of Archaeology and Museums, Government of Rajasthan brought to light several ancient sites. A tabulated list of the explored sites is given below:

(PGW= Painted Grey Ware ; BR—Black-and-red Ware ; GW=grey ware ; RW=red ware (Kushan); MW=Muslim ware; ESA=Early Stone Age; LSA=Late Stone Age)

District	*Name of the site*	*Wares and other associated finds*
Bharatpur	Belara (Bada)	RW
,,	Bhimnagar	PGW
,,	Darapur	PGW, BR, Kushan terracotta figurines and sculptures
"	Ikran	PGW
"	Kerawa	PGW
"	Kesot	PGW
"	Korer	PGW, GW
"	Kwardiya	PGW, BR
,,	Parcmdara	PGW
"	Satar	PGW, BR, MW
"	Tomrer	PGW
"	Umra	PGE, BR
"	Vahaja	RW
Bhilwara	Dhanop	LSA
Jaipur	Dayarampura	BR
Jhalawar	Kalisindh Valley near Jhalawar	ESA

49. EXCAVATION AT NOH, DISTRICT BHARATPUR.—In continuation of the previous year's work *(1968-69,* p. 26), the Department of Archaeology and Museums, Government of Rajasthan, under Shri R. G. Agrawal, assisted by Shri Vijai Kumar and Shri B. M. S. Parmar, resumed excavation at Noh. The objective of this year's dig was to re-examine

the sequence of cultures in the lower levels. Two trenches, H and I, measuring respectively 7 X 5 and 5 X 6 m., were taken up on the western slope of the mound. In addition, a section of the mound on the north-east corner was also carefully scraped.

The excavation confirmed that Period I was marked by the use of the Ochre Colour Ware, of which only few sherds of indeterminate shapes were found.

The strata of Periods II and III were found to be very badly disturbed, possibly through erosion, as indicated by the find of river gravels mixed with rolled sherds of black-and-red and grey wares. Remains of a floor were, however, noticed in these levels.

The deposits of Period III consist essentially of a 3-m. thick filling which was made to raise the level of the ground against damage from floods. The strata contained sherds of both the Painted Grey and N. B. P. Wares. A large number of antiquities, including terracotta figurines, beads, iron and copper implements, ivory hair pins, ear-studs of semi-precious stone, etc., were obtained from these levels. The interrelationship between Periods II and III was, however, not very clear.

Period IV was characterized by the use of the N.B.P. Ware in its fullness. The Painted Grey Ware was conspicuous by its absence. Noteworthy objects obtained from the deposits of this Period included: beads of terracotta, glass, ivory and stone; a steatite casket; corroded copper coins; terracotta human figurines and other animal figurines bearing punch-marks or notched circlets; copper and iron implements, etc., and a seal bearing an inscription *'Dhuvamitasa'* in Brahmi letters.

At the north-east corner of the mound, the earliest deposit above the natural soil was that of Period IV.

Period V was represented by the finds of the Kushan period. These included: a seal, bearing an inscription in Brahmi characters; terracotta animal figurines; copper cast coins; terracotta toy-cart frames; discs and flesh rubbers; antimony rods; bangles of shell, glass and terracotta; beads of terracotta and stone, etc. A well-preserved smelting-furnace with a large quantity of iron slag was also exposed.

TAMIL NADU

50. EXCAVATION AT KANCHIPURAM, DISTRICT CHINGLEPUT.—The Department of Ancient History and Archaeology, University of Mardas, resumed *(1969-70*, p. 34) excavation at Kanchipuram. The work was directed by Prof. T. V. Mahalingam, with assistance from Dr. G. Krishnamurthy, Shri A. Swamy and Shri S. Gurumurthy. The principal aim of this year's dig was to ascertain the early history of Kanchipuram, especially its association with Buddhism in the early centuries of the Christian era. Three trenches (KCM-4, KCM-5 and KCM-6) were laid out in the area near Kamakshi temple. The excavation confirmed the last year's sequence of a three-fold division of cultural periods, with a sub-division in the earliest.

It may be recalled that last year remains of a Buddhist shrine-chamber and an inscribed potsherd, bearing the name of a Buddhist monk, etc., were recovered from the same area. This year's, work furnished further evidence to indicate that many Buddhist *stupas* had been constructed at Kanchipuram, a few centuries prior to and after the Christian era. The finds obtained from this area included: sherds of the Rouletted and Arretine Wares; terracotta human figurines, showing elaborate headdress; three coin-moulds (pl. XLIX A) one of which bore a short Brahmi legend and another Ujjain symbol; four amulets (pl. XLIXB) representing double-fish, flower design, etc.; bangles of shell, glass and terracotta; and beads of carnelian, crystal, paste, terracotta and glass. The discovery of a

double-fish motif and a coin-mould with the Ujjain symbol indicates the influence of the Satavahanas in this region.

In KCM-4, remains of a *stupa-like* structure (pl. XLIX C) were found in the lowermost layer. The structure consisted of four courses of baked bricks. The bricks in the lower two courses formed a segment of a circle while the upper courses were found to run straight. The full outline-plan of the structure, which can be dated to *circa* second-first century B.C., still remains to be exposed by further excavation. A row of post-holes affords evidence for the existence of a roofed structure.

51. EXCAVATION AT PALLAVAMEDU IN KANCHIPURAM, DISTRICT CHINGLEPUT.—The Department of Archaeology, Government of Tamil Nadu, carried out an excavation at Pallavamedu. The work was taken up under the guidance of Shri R. Nagaswamy, assisted by Shri A. Abdul Majeed and Shri K. Damodaran. The site is traditionally associated with the Pallavas and was excavated earlier *(1953-54,* p. 12) by the Survey. The present excava tion revealed three periods of occupation.

Period I was characterized by the occurrence of: a red ware in varying shades; a terracotta human figurine; and shell bangles. In the lowest level, the strata indicated that the river Vegavathi was flowing very near the site during the period of the Pallavas *(circa* sixth-ninth century A.D.), the present course of the river being about 2½ km. away. A storage jar, found at a depth of 5-85 m. below surface on the sandy bank was probably used for washing cloth.

Period II was marked by two structural phases represented by a mud platform and floorings. In the upper flooring were found two hearths, showing traces of burning. Notable finds included: potsherds with graffiti marks; red and black wares; and beads of crystal and glass.

Period III was distinguished by the occurrence of: glass beads; stucco pieces; a tiny *linga;* and pottery of the same class as that of the earlier Period. The structural remains of the Period consisted of a big dump extending to 20 metres. This phenomenon obviously represents the debris of a building towards the end of the Pallava rule in *circa* ninth century A.D.

52. EXCAVATION AT VASAVASAMUDRAM, DISTRICT CHINGLEPUT.—Following the discovery of amphora jars, as a result of indiscriminate digging by the land-owner for obtaining lime-shell, the Department of Archaeology, Government of Tamil Nadu, carried out a salvage excavation at Vasavasamudram, situated at the mouth of the river Palar. The excavation was conducted under the guidance of Shri R. Nagaswamy, assisted by Shri N. Kasinathan and Shri A. Abdul Majeed.

The excavation revealed only one period of occupation, represented by a 1-92-m. thick deposit. Two ring wells, located close to each other, were exposed in this digging. It was gathered that a brick-lined pit with a drain had existed near the ring wells, which had been dug away by the land-owner. The pottery obtained from the excavation included the Rouletted Ware and amphorae jars. The site seems to have remained under occupation only for a short period *(circa* second century A.D.).

53. EXCAVATION AT PERUR, DISTRICT COIMBATORE.—With a view to finding out the cultural sequence of the western region of Tamil Nadu, the Southern Circle of the Survey, under Shri K. V. Soundara Rajan, assisted by Shri B. Narasimhaiah, carried out trial digging at Perur, 8 km. to the south-west of Coimbatore. Situated on the western bank

of the river Noyyal, a tributary of the Cauvery, the ancient site, locally known as Nattam, occupies an area of about 3-25 hectares. The excavation revealed a sequence of three cultural periods, each overlapping with the other and suggestive of a continuous occupation.

Period I (first to third centuries A.D.) was represented by an 80-cm. thick deposit, yielding the megalithic Black-and-red, plain red and all-black wares. The first-mentioned Ware was available in both thin and medium fabrics.

Period II (third to sixth centuries A.D.), represented by a 1-60-m. thick deposit, had the Russet-coated Painted Ware as its principal ceramic industry. The painted designs (pl. L A) consisted of wavy, zigzag, criss-cross and oblique lines, concentric semi-circles, etc. The dotted pattern, common at Tirukkampuliyur and Alagarai, in the lower Cauvery basin, was represented here by a solitary example. Significantly, some miniature pots and dishes of dull red ware were found to bear dotted decoration all over the body. In the late levels of this Period, a new pottery, viz., the blackish grey ware, was introduced. Some of the pottery in the red and blackish grey wares bore incised, stamped and impressed cord designs over the shoulder. Mention may also be made of certain sherds bearing graffiti marks (pl. L B). Other finds of the Period included: shell bangles; beads of glass, terracotta, paste and gold (one example); terracotta lamps and what appeared to be miniature hubble-bubble with incised lines; and iron objects like nails, rings, etc.

Period III (sixth to ninth centuries A.D.) showing a 1-m. thick cultural deposit, was represented by walls of baked brick (pl. LI A) and a covered stone-drain (pi. LI B). Besides, many mud-plastered troughs, connected through clay pipes to some buried pots were also found. These troughs might have been used to prepare potassium nitrate from the soil, a method still in vogue in this part of the country. The bulk of the pottery was unslipped. This period might have come to a close around ninth-tenth century when the town attained the sanctity of Chidambaram through its Sri Pattisvaraswami temple.

54. EXPLORATION IN DISTRICT DHARMAPURI.—Shri B. Narasimhaiah of the Southern Circle of the Survey located, in Taluk Harur: (i) two Late Stone Age sites at Kadirinayakkanhalli and Vedarampatti; (ii) two neolithic sites at Alampuram and Venkatasamudram, yielding hand-made burnished grey and red wares, bearing post-firing ochre painted designs and pointed-butt ground axes; (iii) a habitation site at Kadattur, yielding megalithic Black-and-red and plain red wares; (iv) megalithic cairn circles at Adikarappatti, Gundalamaduru, Jammanahalli, Kadattur, Kokkarapatti, Maniyabadi, Pillipatti, Ramenahalli, Talanattam, Tenkaraikottai, Vedarampatti and Venkatasamudram. He also collected a number of pointed-butt ground axes at the top of Battalamalai hill in Harur Taluk.

55. EXCAVATION AT MALAIYAMPUTTU, DISTRICT NORTH ARCOT.—The Southern Circle of the Survey, underShri K. V. Soundara Rajan, assisted by Shri B. Narasimhaiah, conducted a trial excavation inside the cavern at Arumbhavimalai near Malaiyamputtu, about 13 km. to the north of Ambur. The cavern which bears paintings (pl. LII) of the tenth century in Rashtrakuta style, on the ceilings, was later converted into a temple built of mud-bricks.

The temple was built over an earlier deposit of about 2 m. yielding, in the lower levels, sherds of the megalithic Black-and-red Ware along with those of the hand-made, coarse, black-slipped ware, burnished or unburnished, the latter appearing to be a lingering vestige of the earlier neolithic tradition. This phase may be dated from the third century B.C. to about the third century A.D.

The post-megalithic culture was represented by the use of the Russet-coated Painted Ware besides a dark brown slipped ware with crackled surface. In the latter group, vases with incised decorations constituted the bulk.

56. EXCAVATION AT KAVERIPATTINAM, DISTRICT THANJAVUR.—In continuation of the previous work *(1964-65*, p. 24), the Southern Circle of the Survey under Shri K. V. Soundara Raj an, assisted by Shri B. Narasimhaiah, carried out excavation at Sampapati Amman temple site at Kaveripattinam.

The excavation revealed interesting details relating to the method of construction (pl. LIII A and B) of the temple, situated to the south of the Sayavanam temple: a platform, made of earth and hard gravel, was raised to a height of 1 m. on the natural sandy soil; the central part of the platform was further raised to a height of 35 cm. by means of three courses of brick construction; over the latter was built the temple basement, made of moulded bricks, belonging to later Chola times *[circa* tenth to twelfth centuries A.D.). A votive tank of baked brick and a large number of terracotta horses were found close to the brick courses of the platform. Of the pottery, the most important type was the bowl, with slightly out-turned beaded rim and grooved shoulder. Some beads of semi-precious stones were also obtained from the excavation.

The pre-temple phase is represented here by two terracotta ring-wells (pl. LIII A) sunk into the natural soil.

57. EXCAVATION AT UKKIRANKOTTAI, DISTRICT TIRUNELVELI.—The Southern Circle of the Survey, under Shri K. V. Soundara Rajan, assisted by Shri B. Narasimhaiah, conducted excavation at Ukkirankottai, the fortified city of Karavandapuram of the Pandya inscriptions *(circa* seventh to ninth centuries A.D.). A trench, laid across the fortifications, revealed a 4-m. wide wall (pl. LIV) made of mud and mud-bricks and a moat, partly cut into the bedrock. The inner side of the fortification-wall was found to be reinforced by rammed earth in a sloping profile.

The excavation within the walled area revealed a single-culture deposit, datable to the seventh to tenth centuries A.D.

UTTAR PRADESH

58. EXPLORATION IN DISTRICTS ALLAHABAD, BANDA AND MIRZAPUR.—In continuation of the work of the previous year *(1969-70,* p. 35), the Institute of Archaeology, University of Allahabad, resumed exploration in the Belan Valley and Dudhi regions. The work was conducted under the direction of Prof. G. R. Sharma, with assistance from Dr. R. K. Varma, Shri B. B. Misra and Shri D. Mandal. As a result thereof several sites of the Early, Middle and Late Stone Ages, including those of the so-called Upper Palaeolithic, were brought to light. Besides, many painted rock-shelters, neolithic and neolithic-chalcolithic sites were also located. A good number of animal fossils were also collected both from the bed and sections of the river Belan.

Early Stone Age tools comprising pebble tools, handaxes (pl. LV A and LVII), cleavers (pls. LV B and LVI A) and scrapers (pl. LVI B), along with a good number of cores and flakes were collected from the beds of the rivers Belan and Seoti. At the factory site of Chhatarpalia, the tools of this fades were collected right up to the toe of the escarpment. Excepting one noteworthy example on chert, all the tools were made of quartzite.

Typical tools of Middle Stone Age were collected from Raja Bhuis, and Ramgarh

near Dhavaihava and Suria, situated between the river Belan and Ramgarh hillock. Besides, three new factory sites were located at Koskangarha-Sect. II, Murawa and Peari. On the basis of size, technique and raw material, tools from the first mentioned site seemed to belong to an early stage of the Middle Stone Age (pl. LVIII A). From the different sectors of the Belan, as many as thirty-seven tools of this assemblage were extracted from Cemented Gravel II. Of these, three belong to the earliest phase, twenty-four to the middle and ten to the latest. As regards raw material, it was noticed that the tools obtained from the early phase were fashioned on quartzite, while those of the middle and late phases on quartzite and chert (pl. LVIII B), with an increased percentage of the latter material in the last phase. Similarly, the size of tools was observed to be progressively small from the early to the late phase.

Shri Kashi Nath, a research scholar of the Department of Ancient Indian History, Culture and Archaeology of the University, collected tools of Middle Stone Age from about ninety sites, located in Dudhi Subdivision of District Mirzapur (Uttar Pradesh) and Garawa Road sector of District Palamau (Bihar). The tools, which are made on cherty flint, consist of long blades, different types of scrapers, points and occasionally burins. Among the sixty explored sites in the former region, the following are noteworthy: Charkahawa, Chhuhia, Ghotara, Khurdhan, Lamgorawa, Ramgarh Pahar and Thandia Pahari. Likewise, in the latter region, the following sites deserve special mention: Andhari Pahar Chalwa, Ghutara, Chopali Pahar, Dhajawa Pahar, Dhonka Pahar and Jhari Pahar. On typo-technological considerations, the Middle Stone Age tools of this area seem to be comparatively late.

Blades, points, scrapers and burins (pl. LIX A) of the so-called Upper Palaeolithic facies, fashioned on chert or cherty flint, were collected from Peari in the Belan Valley in District Allahabad and Bari Ghutara, Chhuhia-Ghotara, Jhandia, Jamunia, Khundhan, Ramgarh Pahar, Reghra Sector A and C and Salaidih in Dudhi Sub-division of Mirzapur. In the Belan Valley, a significant discovery, however, was the find of a bone harpoon (or a human figure) from Gravel III (pl. LIX B). This is the first discovery of its kind in these contexts.

Late Stone Age sites, yielding blades, scrapers, points and lunates were located at Amilia, Peari, Raja Bhuia nullah, Ramgarhwa nullah, Rerua and Saria nullah in the Belan Valley of District Allahabad and Belasy Chhuhis and Panchpheri in Dudhi Subdivision of District Mirzapur, as also from Jhiri on the left bank of the Tons, 3 km. up the stream from its confluence with the Ganga.

Painted rock-shelters were located at Daria and Peari. The paintings, which show dancing and riding scenes, were executed in ochrous red and dull white pigments. In Dana, two layers of paintings, one superimposed over the other, were noticed.

Neolithic sites were discovered at Majhiari on the Lapari, in Meza Subdivision of District Allahabad. Shri Jaya Narain Pandey, a research scholar of the Department, collected a large number of celts, adzes and pounders from Bhikhampur and Purawa Tarauha near Bharatkup in District Banda. The tools in all the cases were made on basalt.

The exploration also brought to light chalcolithic sites in the Belan Valley. Two of these however, are noteworthy: Koldihawa and Panchoha, both in District Allahabad. The former is located on the confluence of the old and new Belan and has, to a large extent, been denuded by these rivers. The occupational deposit ranges between H to 2 m. in thickness. The pottery obtained from the site included red, black-slipped and the black-and-red wares. Excepting a few hand-made examples, the pottery by and large was made on wheel. Instances of rustication on the lower portion of the pots in the coarse red and black-and-red wares were also met with,

Among other finds, mention may be made of querns, pestles, weights, animal figurines, ear-studs, balls, a muller-like terracotta object, copper bangles, beads of copper, terracotta and semi-precious stone and bone arrowheads and points (pl. LX A-D).

The site of Panchoha is located on the right bank of the Belan near Deoghat bridge and yielded microliths, including crested-ridged flakes, neolithic celts, and sherds of the coarse red and black-and-red wares.

59. EXCAVATION AT PIPRAHWA, DISTRICT BASTI.—During the course of clearance-work at Piprahwa (pl. LXI A), undertaken by Sarvashri K. M. Srivastava and A. D. P. Singh of the Mid-eastern Circle of the Survey, structures of different phases were exposed. A section along the western slope of the *stupa*, in which the relic casket was found, revealed that the original *stupa* was also re-built on subsequent occasions (pl. LXI B).

On the south-western side, several votive *stupas* were exposed. In the eastern part of the mound, a monastery-like structure, having as many as seventeen rooms was partially exposed. The structure, showing four building phases (pl. LXII A), was built of baked bricks, set in lime mortar. On the basis of the occurrence of a spout of the Red Polished Ware the last but one phase could be dated to *circa* second-third century A.D.

The clearance in the north-western part of the site yielded an extensive flooring of baked bricks (pl. LXII B), enclosed by walls on all sides and covering an area of 10-60 m. square. It is not unlikely that the flooring served the purpose of a public hall.

60. EXPLORATION IN DISTRICTS BULANDSHAHR, ETAH AND MORADABAD.—The Department of History, Aligarh Muslim University, under Shri R. C. Gaur, assisted by Shri M. D. N. Sahi and Shri J. M. Siddiqi, undertook exploration in the Districts. The explored sites with their cultural assemblage are listed in the appended table.

(OCP=Ochre Colour Pottery; BR=Black-and-red ware; PGW=Painted Grey Ware; G=grey ware; NBP=Northern Black Polished Ware; BS— black-slipped Ware; R=red ware (Sunga-Kushana period); M=medieval ware)

District	*Tahsil*		*Ware*
Bulandshahr	Anupshahr	Ahar	GRM
,,	,,	Akrabas	OCP, RM
,,	,,	Chandpur	OCP, PGW, R
,,	,,	Danpur	R. M
,,	,,	Deevlakhara	OCP, M
,,	,,	Rasheedpur	M
,,	,,	Shakoorganj	BR, PGW, G, BS, R
,,	,,	Yeseenpur	PGW, G, BS, R
,,	Bulandshahr	Salimgarh	M
,,	Khurja	Ahmadgarh	BR, PGW, G, BS, R
3J	,,	Pindrawal	G,R,M
Etah	Etah	Lohiakhera	G, BS, R, M
Moradabad	Bilari	Karwarkhera	OCP (?), R, M
,,	,,	Khera Khas	R, M
,,	,,	Sarthalkhera	G, R, M

61. EXCAVATION AT SAIPAI, DISTRICT ETAWAH.—Following the reported find of 'Copper Hoard' objects during the course of the ploughing up of a field at Saipai, Shri L. M. Wahal of the Northern Circle of the Survey was deputed to inspect the area and to verify the authenticity of the news by checking up the objects themselves as also their find-spot. This was done and, as a sequel, in May 1970, a trial-trench was laid out very close to the find-spot in order to find out if there were any other remains in the field. Luckily, during the course of the trial dig besides pottery, a hooked spearhead was also found. With a view to obtaining further data, in December 1970, therefore, a regular excavation, though on a small scale, was undertaken by Shri Wahal under the general direction of Shri B. B. Lai. With them collaborated a team consisting of Sarvashri B. K. Thapar, Amir Singh, B. P. Asthana and Avtar Singh. For this season's dig, an area measuring 20 X 20 m. was taken up. Within it fell the spot from where the Hoard had been recovered in 1969.

During the course of this dig, a harpoon was found at a depth of 45 cm. below the surface. In the associated soil-deposit was also found a red ware. Although many sherds of this pottery left an ochrous colour on the finger at the time of handling as was the case with the Hastinapura, Bisauli and Rajpur Parsu fragments, it became equally clear that a good many pots had a red slip. In fact, in one case, even a painted design—criss-cross lines in black pigment—was found over the slip. The pottery has little in common with the Harappan Ware. Some of the noteworthy types in this ware are, jars, with flaring rim, bowls and basins, sometimes with handles and spouts. In one case, a fragmentary stem suggests the existence of the dish-on-stand type, while, in another case, a fragment is indicative of a ring-stand. Salient feature of this pottery is its incised decoration. On the upper part of the exterior of many pots, there occur, above a thick notched band, incised designs including rows of dots or dashes or a series of triangular compartments enclosing rows of dashes.

The other objects found in the excavation include balls, pounders, rubbers, querns and palletes of sand-stone, a chert blade and a chalcedony flake.

There also occurred a few broken pieces of kiln-burnt clay. In one case, three faces seem to be identifiable, on which basis it would appear to be a part of a brick. However, much more material is needed before it can be said that the Copper Hoard people used kiln-burnt bricks. The presence of chunks of burnt clay, bearing reed-impressions, indicates that some houses at least were made of wattle-and-daub.

From these deposits were also found bones, including ribs, of *Bos indicus*, whose domestication is thus suggested.

This excavation has for the first time provided positive evidence regarding the pottery and other artifacts that went along with the Copper Hoards of the Ganga Valley.

62. EXCAVATION AT MASAON, DISTRICT GHAZIPUR.—The Sanskrit University, Varanasi, resumed excavation at Masaon under the direction of Shri R., B. Narain. The main objective of this year's dig was to confirm the cultural sequence of the site, brought to light during the previous excavation *(1967-68,* p. 46). Two trenches, each of 10-m. square, were taken up for excavation on the south-western portion of the mound.

The excavation confirmed the sequence of fourfold cultural periods. Of these, Period I was divided into two Sub-periods, IA and IB. The former, represented by a 1-m. thick deposit, was marked by the absence of the N.B.P. Ware and the use of grey and red wares. No other finds were obtained from the associated levels. Sub-period IB, showing a deposit of nearly 4-m. was distinguished by the appearance of the N.B.P. Ware. The wares of the previous Sub-period also continued along side the latter ware. The typical black-and-red

ware, reported from sites like Rajghat, Chirand and Sohagaura, was completely absent at this site. Among the finds from this Sub-period, mention may be made of animal figurines, bone points, iron objects, terracotta balls and terracotta discs. In one pot were found more than three thousand cowries, indicating perhaps that they might have been used as a medium of exchange. Structural remains of the Sub-period consisted of floors and pits.

Period II *(circa* second to first centuries B.C.) yielded typical human and animal figurines, dabbers, discs, beads and antimony rods. The ceramic industries of the Period were almost the same as that of Sub-period IB, with a slight degradation in the fabric of the N.B.P. and the black-slipped wares. A noteworthy find, however, was a pendant, bearing an impression of a human head, perhaps a royal personage. The facial expression of the figure appears to be exotic.

Period III *(circa* first to third centuries A.D.) yielded terracotta human and animal figurines, bone points, antimony rods, beads, bangles, two inscribed sealings and coins. Structural remains of the Period consisted of regular walls with brick floorings and pavements.

Period IV *(circa* fourth to sixth centuries A.D.) yielded terracotta human and animal figurines, beads, bangles, terracotta discs and balls and antimony rods. A major portion of the deposits of this Period were levelled or removed by the local cultivators. Remains of two mud platforms, belonging to the Period were exposed.

63. EXPLORATION IN DISTRICTS KANPUR, MATHURA AND SITAPUR.—With a view to locating ancient sites and loose sculptures, the Department of Archaeology, Government of Uttar Pradesh, undertook exploration in the above-mentioned Districts.

In Tahsil Kanpur several sculptures belonging to the medieval period were noticed in villages Amlipur, Atwa, Kalyanpur, Naubasta, Naurangabad and Pepergawan, and ancient mounds at Bhul, Khirsa, Pankiganga and Ramaipura.

In Tahsil Ghatampur of the District Kanpur, ancient mounds were located at Amauli, Kurain, Nibiya Khera and Rataipur. Of these, the site at Kurain yielded sherds of the N.B.P., black-polished, red-slipped, red and glazed wares. Several medieval sculptures, representing Ganesa, Mahishasurmardini, Vishnu and fragmentary door-jambs, were found lying scattered in the village which *inter alia* contains a brick temple constructed in *circa* A.D. 1400.

In District Mathura ancient mounds were located at Arbay, Gausana, Nari Khera, Naughel, Raya, Sankhee Seray and Sirgadh.

In District Sitapur, remains of early medieval temples of *circa* tenth century A.D. were found at Dalwal and Ganga Devi and ancient mounds at Arro, Hargaon, Kanwa Khera and Hazapur. Of these, the site at Kanwa Khera yielded sherds of the N.B.P. Ware while that at Hargaon, an inscribed sealing of the Sunga period. The remaining two sites belonged to the medieval period. Besides, medieval coins were obtained from Bhit Biram and Dhewarsahar, and Gupta terracotta from Senapur.

64. EXCAVATION AT SONKH, DISTRICT MATHURA.—In continuation of the previous year's work *(1969- 70,* p. 42) the German team, under the direction of Prof. Dr. H. Haertel, resumed excavation at Sonkh for the fifth season. In this season, four principal objectives could be realized: first, the conclusion of the horizontal digging in the Kushana levels 17 and 18; secondly, the continuation of excavation in levels 19 to 22 in the northern area; thirdly, the exposure of structures situated along the slope of the great ditch (levels 23 to 26); and fourthly, the exploration of the "temple island" in the squares 6 III/6 IV.

The remaining area of levels 17 and 18 revealed foundations of houses along an open space, surrounding the building with the apsidal end. This structure was finally found to be the apse of a Kushana brick temple (pl. LXIII), which had been renovated, enlarged and partly re-built during the Kushana settlement. The building was presumably situated in the centre of the old habitation area. A stone relief of a *matrika,* found last year, was lying on the floor before a platform of the second-last structural phase of the apse.

Due to the re-use of bricks for the houses of the upper levels, the structures of the lower levels viz., 19 and 20, were found to be robbed and thus incomplete on plan. However, structures of levels 21 and 22 which, on the basis of the coins and other associated finds, can be assigned to the period of Kanishka, were much better preserved. Among the numerous finds from the remaining houses and floors, a small flat bronze figure of Skanda (pl. LXIV B) and a hollow plaque with the depiction of a body-wheel (pl. LXIV C), deserve to be mentioned. Other antiquities included stamped pottery, seals, terracotta figurines, etc.

Along the slope of the great ditch to the north of the excavation area, a few structures belonging to the levels 23 to 26 could be exposed. While the upper building phase of level 23 seems to be the starting-point for the stamp-designed Kushana pottery, the lower structures were of clear pre-Kushana origin. The size of the bricks changed from 37 X 23 X 5 cm. in levels 16 to 22 into 40 x 25 x 5 cm. and 42 x 26 x 6 cm. in the pre-Kushana levels. There are several new features in the setting of walls and the erection of the roofs. From level 25 downwards, the now gable-shaped roofs had been covered with tiles. In level 25/26 a separate house with a ring-well seems to indicate a joint water-supply for the community. Within the well, a Kshatrapa-styled terracotta plaque of a man with a moustache was found. Aside of it, a votive-tank (pl. LXIV A) in the shape of houses with vaulted roofs and a seal with Brahmi script of the second half of the first century B.C. (reading: *pidada-khakasa)* were most revealing. The pottery shapes are all of pre-Kushana type.

During the work in Kushana levels (16 to 18) several fragments of stone railings and stone figures of Kushana style came to light. Since these were found in the debris only it was a constant consideration to find the original site of the temple (s) those stones hailed from. A small trench, inserted to the southern side of a modern temple in the squares 6 III/6 IV, finally resulted in the exposure of remains of a second apsidal temple near the bed of an old river, now used and re-built for a modern canal. This apsidal temple is with an outer width of 3-85 m. for the apse, undoubtedly bigger than the one in the centre of the habitation area. The main work at this place had to be postponed till the next season.

65. EXPLORATION IN DISTRICT MEERUT,—Continuing his work in the District *(1969-70, p.* 43),Shri R. P. Sharma of the North-western Circle of the Survey discovered a Painted Grey Ware site at Nagla Hareru in Tahsil Mawana. In the same Tahsil he discovered medieval sculptures of Vishnu and Mahishasurmardini in village Phalauda. Besides, he also located historical mounds at Barkali, Dadri, Kunda, Nohari and Phalauda.

66. EXCAVATION AT ALLAHAPUR, DISTRICT MEERUT.—The History Department of the University of Delhi, under the direction of Dr. Romila Thapar of the University and Shri K. N. Dikshit of the National Museum, conducted excavation at Allahapur, near village Surana, some 13 km. west of Muradnagar. The site lies on the left bank of the river Hindon, a tributary of the Yamuna. Shri R. P. Sharma of the Survey and Dr. (Smt.) O. Manchanda of Miranda College, Delhi, also assisted in the excavation. The objective of the excavation was to obtain further details of the culture of the Painted Grey Ware using people.

Eight trenches, each measuring 5 X 5 m., were laid out on the northern side of the mound. The excavation revealed an occupational deposit of about 2-8 m. belonging to two cultural periods, the earlier of which was again sub-divided into two. Sub-period IA, represented by a 1-m. thick deposit, was characterized mainly by black-and-red, Painted Grey, plain, slipped and coarse red wares. It may be mentioned that .in the lower levels of the Sub-period, black-and-red ware occurred in greater frequency than the Painted Grey Ware. The position, however, was reversed in the upper levels. Although no structure was encountered in the limited area of the excavation, hearths, closed and open-mouthed, successive mud-floors with post-holes, patches of ash, and traces of burnt reed-impressed mud plaster were duly found. All put together present a picture of a village-settlement with huts raised on wooden poles, with walls of reed-mat, plastered all over with mud. The use of iron was clearly evidenced. Charred bones along with horns were found throughout the occupation. The material equipment was augmented by a number of terracotta and and bone objects.

In Sub-period IB, all the wares of the previous Sub-period excepting black-and-red ware, continued to occur along with the associated miscellany of finds. The types in the red ware are comparable to those found in Period III at Hastinapura. The inhabitants also used baked bricks with rice husk as a *degraissant.* These bricks, which are of varying sizes (33 X 16 X 5-5 or 39 X 19-5 X 5 cm.), bear different finger designs possibly as frong-marks. As most of these bricks were encountered in debris near the successive burnt-floors, the nature of the structures in which_they_ were used could not be ascertained. Amongst the very few remains of indeterminate structures, was a circular mud walled room containing some well-preserved hearths, burnt-floors, post-holes and baked bricks. Remains of a few straight mud walls with a maximum width of about 60 cm. were also encountered. The other finds of the Period included: terracotta objects; beads; ornamented discs; iron objects like spearhead, arrowhead, blade, etc.; copper nail parer; stone querns and pestles; double-ended and tanged bone points; awls, kohl-sticks, etc. Of the significant finds, mention may be made of a terracotta seal with a Brahmi inscription in late Mauryan characters reading *'Bhadrapalasa',*

The colour of the Painted Grey Ware in both the Sub-periods varies from ashy to .dark grey. By anti large the shapes of pots and the painted designs on them are almost "similar "to those found at other Painted Grey Ware sites in the upper Ganga-Yamuna *doab.* Among the new types met with at Allahapur mention may be made of ring pedestal of a bowl or vase.

The variety of bone objects from this site requires a detailed techno-typological study because the objects in such a large number have not so far been found at other Painted Grey Ware sites. Interestingly enough, 90 per cent of the objects were found to be manufactured out of antlers. Of particular interest, however, is a bone point inserted with an iron rod (from Sub-period IB).

Period II, the remains of which were encountered in one of the trenches by a flimsy deposit of about 40 cm., was distinguished by a painted red ware, assignable to the beginning of the Christian era.

67. EXCAVATION AT KASHIPUR, DISTRICT NAINITAL.—After a lapse of three years, the Northern Circle of the Survey resumed *(1965-66,* p. 53) the excavation of the Bhim-gada mound at Kashipur, identified as Kiu-pi-Shwanga-na of Hiuen Tsang's narrative, and rendered into Sanskrit as Govisana by Julien. The excavation was conducted by Shri T. S.

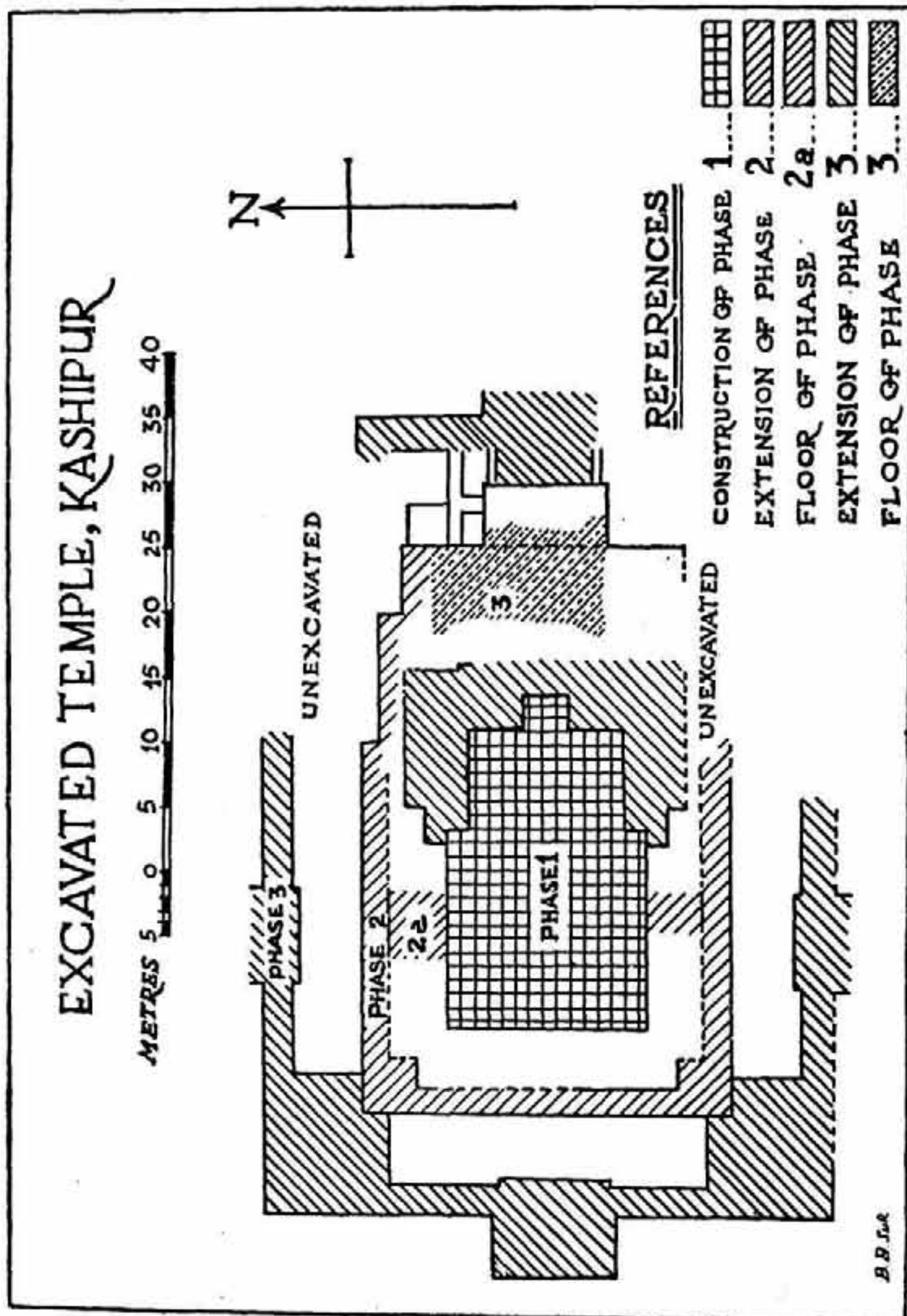

EXCAVATED TEMPLE, KASHIPUR
METRES 5 0 5 10 15 20 25 30 35 40
N
UNEXCAVATED
PHASE 3
PHASE 2
2a
PHASE 1
3
UNEXCAVATED
REFERENCES
CONSTRUCTION OF PHASE 1
EXTENSION OF PHASE 2
FLOOR OF PHASE 2a
EXTENSION OF PHASE 3
FLOOR OF PHASE 3

Fig. 4

Iyengar, under the direction of Dr. Y. D. Sharma. The operations were limited to exposing further the unique remains of the early medieval brick temple.

As a result of the present season's work, a substantial part of the plan of the temple in its different phases has been revealed. Initially, the temple appears to have started as a solid brick-built high platform, surmounted possibly by a sanctum, but later two encircling walls were laid around it in two different phases, converting it finally into an extensive and impressive *panchayatana* complex. There are thus three main phases of construction (fig. 4).

The earliest of the exposed remains (Phase-1) is a massive central platform. In all likelihood, initially it was only 3-1 m. high; subsequently it had been raised in Phase-2 higher than its existing height of 6-1 m. It measures some 25-55 m. from east to west and 15-3 m. from north to south. At its eastern end, its width was reduced to a 3-8-m. wide tongue by means of two recesses. The same feature was repeated on the western end, where the tongue-like projection was perhaps ascended by a flight of steps, later concealed by posterior structures. Originally, this platform appears to have been a plain but tall building without any enclosure. What type of sanctum rested on it is no longer certain, as it appears to have been removed either by brick robbers or earlier excavators. A characteristic feature of the entire building was that, while the outer face had been finished with regular and full bricks displaying high workmanship, the interior had been filled from the foundation upwards with broken bricks, but laid in regular courses.

The modification and elaboration noticed in the building in subsequent phases was obviously necessitated by the changing ritual needs as also by the increasing prosperity of the town. Apart from raising substantially the height of the central platform a circum-ambulatory wall, 1-85 m.in thickness and 6 m. in height, was laid around it. Of this wall, a stretch of 43-7 m. has so far been exposed along the east-west axis and 28-75 m. along the north-south (pl. LXVII A).

This wall, which was open to the public view, covered, by its height, the original central structure. Fineness of joints, even in mud mortar, smoothness of finish and simplicity of decoration with a series of *chaitya* windows, judiciously disposed across it, impart it dignity, rarely equalled in ancient brick buildings. The central *chaitya* window on the north, the only one surviving on this side, unlike those on the south, has double opening, one above the other (pl. LXVII A). The space between the ornamenta wall and the central platform was used as a *pradakshina-patha,* the level of which gradually rose with the times. One of these levels was found to be paved with baked bricks (pl. LXV). That this wall was raised later than the central platform is clear from the fact that its foundations are 1-25 m. higher than those of the platform.

Subsequently even these extensions failed to meet the requirements of the worshippers. Claims of the subsidiary deities necessitated the enlargement of the temple into a *pancha-yatana* complex. In Phase-3, around the existing central shrine, already encircled by a wall, another 1-85-m. thick wall was raised at a distance of 5-4 m. from the earlier one. In the four corners were built platforms, obviously to support subsidiary shrines (pl. LXVI). On the north, the second wall was raised over the slopes of the brick debris of some fallen structures, and on the east a long flight of steps in the centre covered and rode over the Phase-2 ornamented wall. This accounts for the difference in foundation levels of the external and internal faces of the wall. This wall could be ascended by a flight of steps or ramp located at the centre of each side. The space between the structures of different phases were filled up with earth. Two other towers were also raised at the eastern end, one on each side of the recessed portions of the central platform. On these towers may have rested some *mandapas* or shrines.

An interesting and rather puzzling feature of Phase-3 wall was the existence of three horizontal grooves, 8-12 cm. deep, located at different heights and punctuated at intervals by a square hole penetrating half-way through the wall (pl. LXVI). In these holes, almost invariably were found iron clamps which obviously were used to fasten wooden members, now disintegrated. It appears, therefore, that wooden beams were inserted into the square holes, and planks in the grooves, both the wooden members being secured by iron clamps (pl. LXIX B). The same feature was also noticed on the interior face of the wall. Projecting planks in the fashion of *chhajjas,* therefore, do not appear to be likely. They appear to have been laid to obtain uniform horizontality of the huge brick structure at given heights.

In Phase-3, perhaps no change was effected to the central platform supporting the shrine. But on the eastern side, the ornamented wall and the earlier entrance were covered up by a flight of steps and other structures (pl. LXVII B), and a brick pavement was laid on top, from the ornamented wall to the central platform. This floor seems to have covered the entire area around the sanctum, as the interval between the ornamented wall and the Phase-3 wall perhaps formed a lower terrace.

Repairs were carried out to the, temple-complex from time to time. Signs of these repairs, with inferior workmanship, may be seen on the northern side of the Phase-2 and Phase-3 walls.

Some unrelated and differently oriented rooms were found in the north-west corner outside the Phase-3 wall (pl. LXVI). They appear, however, to have been constructed very late.

No specific dates may be assigned at this stage to the different phases of the temple-complex, as the levels below the different structures were not excavated. It is noticed, however, that a number of decorated bricks (pl. LXVIII A and B), showing designs cut on the clay (and not moulded), were found re-used in the body of the central platform and Phase-2 ornamented wall. Stylistically, they appear to be of an early Gupta date. The central platform of Phase-1 may, therefore, be assigned to the Gupta Period. The ornamented wall of Phase-2, from considerations of *chaitya-window* decorations, flanked by *purnaghata*-columns and the character of wall mouldings, may be attributed to sixth or seventh centuries, while structures of Phase-3 to another fifty to hundred years later.

No evidence has come to light so far to indicate the period when the importance of the temple declined. It was, in all likelihood, a gradual process. But even when the structure had deteriorated, the site continued to be held in sanctity till the fourteenth century or thereafter. Mention has already been made of the discovery from the site of an image of Trivikrama *(1960-61,* p. 67) dated to the thirteenth century. A worn out image of Ganesha, datable to the thirteenth-fourteenth century, was also picked up during the excavation, from the debris-filling.

Decorated bricks showing leaf, flower, lotus and *kirtimukha* motives, cut on the brick surface, and datable to the Gupta period, were noticed in the structures of all the three Phases. In the filling between the walls of Phase-2nd Phase-3 were found, at the foundation-level, eight.heavy cubical stones, some of them with holes in the centre. 12-m. deep and 4 to 6-cm. in diameter, these stones were perhaps used as sockets for doors, either in some earlier buildings or in the sanctum of Phase-1 itself.

It has already been mentioned *(1965-66,* p. 53) that the filling contained pottery ranging from the Painted Grey Ware to the early medieval period. The other finds obtained from the filling belong to an equally wide chronological range.

A terracotta bulla (pl. LXVIII C), perhaps used as a pendant showing two haloed human figures, one holding a bow and arrow and the other a staff or mace, with head

resting on ground, both wearing tight-fitting long coats and boots, recalls the figures on Puri-Kushan coins. Copper coins range from Mathura kings (second-third century B.G.) to medieval 'bull and horseman' type . Among terracotta human figurines is a standing potbellied *yaksha* figure and *satisatta* small plaques (pl. LXIX A), dated at Ahich-chhattra to *circa* A.D. 800 to 1100.

68. EXPLORATION IN DISTRICT SAHARANPUR.—Shri Shankar Nath of the North-western Circle of the Survey continued the exploration in the District *(1969-70*, p. 44) and discovered early historical sites at Ahmadpur Grant, Pherupur, Nasirpur Kalan *urf* Jabiran and Ramkhera in Tahsil Roorkee and at Farukhpur in Tahsil Saharanpur.

H. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. TWO INSCRIPTIONS, ARAVEDU, DISTRICT ANANTAPUR.—One inscription, in Telugu language and characters, engraved on a stone planted in front of the Chennakesavasvami temple, is dated Saka 1450 (mistake for 1460=A.D. 1537) and records the gift of a perpetual lamp by *mahamandaleswara* Nagayyadeva-maharaju, the ruler of Belagal, for the merit of parents and his overlord Raghupatiraju. The other epigraph, also in Telugu language and characters of the sixteenth century, engraved on the wall to the left of the entrance to the *mandapa,* records the conversion of endowment *(manyd)* belonging to the deity Chamnaraya of Aravidu into a *sarvamanya* by *mahamandalesvara* Araviti Bukkaraju for the merit of Araviti Bhattaraju Timmappa.

2. INSCRIPTION, TIRUMALAPURAM, DISTRICT ANANTAPUR.—Engraved on a broken stone planted in front of the Narasimhasvami temple, this inscription in Telugu language and characters of about the eighth century belongs to the reign of Ghalukya [. .] yaditya Satyasraya and records the grant of 50 *marutu* of land to Revala-bola Duggasarmmaru. It refers to Vanaraju's rule from [Pam] buligi and to Perbana Mutturaju's rule from Velaluru.

3. COPPER-PLATE GRANT, DISTRICT KHAMMAM.—This record in characters of about the eleventh century, registers a grant made by a Chalukya chief Kusumaditya of Mudugonda. Their relationship with the Kakatiyas is known from this record for the first time.

4. INSCRIPTION, NIDIGONDA, DISTRICT WARANGAL.—This fragmentary inscription on a slab now preserved in the State Department of Archaeology, Hyderabad, in Sanskrit language and Telugu characters, is dated Saka 1141 (A.D. 1219). It seems to record the erection of a Trikuta temple, probably at Jidikallu for the deities Rudra, Madhava-Mahadeva and another (name lost) and shrines for other deities such as Surya, Ganapati, etc., by Kundamamba (daughter of Kakatiya Mahadeva), the queen of Rudra, the Natavadi chief, and records the provision made for worship. It also seems to record some gifts to *brahmanas.*

5. TWO VIJAYANAGARA COPPER-PLATE CHARTERS.—One[2] of the two charters refers to the great Vedic commentator Sayana as one of the donees. The other belonging to Achyutadevaraya records the grant of Polepalli to *brahmanas.*

[1] Information from : 3, 5, the Director of Archaeology and Museums, Andhra Pradesh; 6, the Director of Archaeology, Gujarat; 18, Prof. K. D. Bajpai, Saugar University, Sagar; 19,23, the Director of Archaeology, Maharashtra; 54, 57, 60-62, the Director of Archaeology, Tamil Nadu; and the rest from the Chief Epigraphist of the Survey, of which 8, 9, 11 also from the Director of Archaeology, Kerala and 45, also from the Director of Archaeology, Tamil Nadu.

[2] This charter is a family heirloom of Kesari Sundararam Sarma of Kavali, District Nellore.

GUJARAT

6. INSCRIPTION, GHUMLI, DISTRICT JAMNAGAR.—This inscription, discovered in a well in the *dharmasala* of the place, is in Sanskrit language and Nagari characters (pl. LXX). It is dated v.s. 146[.], the unit digit being lost. It records a revenue-order abolishing the *chauri* taxation, during the time of a certain Ramadevaji, who is perhaps known for the first time from this record.

7. SAINDHAVA COPPER-PLATE INSCRIPTION, AMBALAS, DISTRICT JUNAGADH.—This charter, written in Sanskrit language and in the southern box-headed characters of the sixth-seventh centuries A.D. and issued from Kuberanagara, belongs to the reign of king Ahivarman, son of Mahasenapati Pushyena. It records the grant, made by the king, of some village, lands and gardens to the Buddhist nunnery *(bhikshuni-vihara)* of Udbheda. The gift was intended for the repairs to the *vihara*, for providing materials for the worship of the Buddha and for maintaining the members of the *bhikshuni-sangha*.

KERALA

8. INSCRIPTION, NALLUR, DISTRICT CALICUT.—This damaged epigraph on a slab, in Tamil language and Vatteluttu characters of about the twelfth century, is dated in the eleventh year opposite to the second (i.e., thirteenth) year in the reign of Ko-Adichchan (Adityan)-Kodai. It records the provision made for the recitation of *Bharata*, for the teach ing *of Nirutta* and for *Santi* (worship). It refers to a chief of Venadu and to a Koyiladikarigal.

9. INSCRIPTION, PUDADI, DISTRICT CALICUT.—This inscription on a slab, in Tamil language and Vatteluttu characters of about the tenth century, is dated in the one hundred and fifty-seventh year of the deity called Tirukkunava[y]-devar. It records some provision made for a lamp.

10. COPPER-PLATE CHARTER, KADALAYI, DISTRICT MALAPPURAM.—This charter, in Sanskrit language engraved in Grantha characters of about the tenth century, is dated in the reign of king Rama of Yadukula and in the Kali era represented in the *Katapayadi* chronogram *'Yenachalante svayam'* (i.e. 14, 63, 601 days=A.D. 909). It records the separation of Taluma-nadu on the bank of the river Churni from a big *agrahara* called Uliyanur and the assignment of the revenues from the two places for the expenditure of two festivals, one held on the day of Tishya in the month of Mina and the other beginning on the day of Satabhishaj in the month of Mesha and ending on the day of Ardra, for god Siva. The entire record is in verse and is stated to have been composed by one Srikantha (cf. *Journal of Oriental Research,* Madras, vol. XXVIII, pp. 24-28).

11. INSCRIPTION, VENNAYUR, DISTRICT MALAPPURAM.—This damaged inscription on a slab, in Tamil language and Vatteluttu characters of about the twelfth century, is dated in the year opposite to the second year in the reign of a king whose name is not clear. It refers to Pattiva (Parthiva)-Koyiladikarigal and seems to record some provision made for worship and offerings to the *devar* at Vennayur probably by Iraman Chedinnar-tiruvadi.

12. INSCRIPTION, TRICHUR, DISTRICT TRICHUR.—This inscription in Tamil language and in Vatteluttu characters of about the eleventh century, engraved on the *kumuda* of

the central shrine to the left of its entrance records that the stone (on which it was engraved) was contributed by Sattan Suvaran of Mullaippalli.

MADHYA PRADESH

13. COPPER-PLATE INSCRIPTION OF PARAMARA NARAVARMAN FROM DEWAS, DISTRICT DEWAS.—This charter, of which only the first plate is available, belongs to the reign of *Paramabhattaraka Maharajadhiraja Paramesvara* Naravarmmadeva and is dated Vikrama 1152 (A.D. 1095). It records the grant of land made by the king on the occasion of the death anniversary *(samvatsarika)* of *Maharaja* Udayaditya, after taking a holy dip at the confluence of the Reva and Kumvilara rivers while he was encamped in the village of Vamatika. The gift land is stated to have been situated in the village of Malapuraka in Ingunipadra-750. The donee, *brahmana* Visvarupa, was the son of Mahirasvamin and the grandson of Dhanapala and belonged to Bharadvaja-gotra and Asvalayana-*sakha*. He is stated to have hailed from Adiyalavida-sthana situated in the Dakshinapatha.

14. INSCRIPTION, BUDHI-CHANDERI, DISTRICT GUNA.—This inscription is in Sanskrit language and Nagari characters and is dated Vikrama 1100 (A.D. 1043). It belongs to the reign of the king Ranapaladeva who was probably of the Pratihara dynasty of Gwalior. It is a *prasasti* in praise of the Saiva ascetic Prabodhasiva of the spiritual lineage of the Saiva ascetic Dharmasambhu, composed by a certain Dasaratha.

15. MAHARAJA BHULUNDA'S CHARTER, INDORE, DISTRICT INDORE.—This charter is in Sanskrit language and in the southern characters of about the fifth century A.D. The inscription, with two dates in an unspecified era and issued from Valkha, refers to the grant of a site for houses named Rohyavahaka, in the Dasilakapalli-rashtra, on the opposite bank of the Narmada, to a number of *brahmanas,* made in the year 38. The record is stated to have been put on the copper-plate in the year 77 on the orders of the king.

16. VISHNU IMAGE INSCRIPTION, BAMURHAHINOTA, DISTRICT JABALPUR.—This inscription is engraved on the pedestal of a broken stone image of Vishnu, found under a pipal tree at the village. It is in Nagari characters and Sanskrit language. It is dated in Kalachuri year 893 (A.D. 1141) and records that a temple of Vishnu was caused to be constructed by a *brahmana* named Vastapala belonging to Parasara-*anvaya*

17. KALACHURI COPPER-PLATE CHARTER, BARHI, DISTRICT JABALPUR.—This charter is in Nagari characters and Sanskrit language. Dated in the Kalachuri year 828 (A.D. 1077), this inscription belongs to the reign of the Kalachuri king Yasahkarnna. It records the grant, made by the king, on the occasion of a lunar eclipse, of the village of Khayari-grama in the [Da]halemkanadapattala, to the *brahmana Ranaka* Amana-sarmman, son of *Ranaka* Danga, and grandson of *Ranaka* Ali, belonging to Gargga-*gotra* with five *pravaras.*

18. INSCRIPTION, REWA, DISTRICT REWA.—This inscription is in Nagari script and contains eight lines of writing. It is dated v.s. 1279 (A.D. 1222) and refers to a donation made by some persons.

MAHARASHTRA

19. INSCRIPTION, ROHILGARH, DISTRICT AURANGABAD.—This inscription found in the Badnapur *vesa* at the village records the construction of *kirttana* by a local Patil in A.D. 1270.

20. BHOJA COPPER-PLATE GRANTS, KOLHAPUR, DISTRICT KOLHAPUR.—Two copper plate inscriptions in Sanskrit language and in southern characters of the sixth-seventh centuries A.D., were issued from Prithiviparvata in the thirty-first year of the reign of the Bhoja king Prithivimallavarman and record grants of lands made to the *brahmana* Sivaryya of Kaundinya-*gotra*. For both the charters the executor *(ajnapti)* was the *bhojaka* Nidhivara and the charters were written by Siridama (mentioned as Sridama in one of the sets) who is described in one charter as belonging to Adirahasiya-*kula* and in the other as Rahasika.

21. JAINA IMAGE INSCRIPTION, CENTRAL MUSEUM, NAGPUR, DISTRICT NAGPUR.—This image is stated to have been from Hoshangabad, District Hoshangabad, Madhya Pradesh. The inscription, which is damaged, is written in Nagari characters and Sanskrit language. It is dated Vikrama 1279 (A.D. 1222-23) and records the obeisance of several persons includ ing a certain Sahadeva belonging to *Ganga-mahanvaya.* It mentions also Balatkara-gana and Mula-*sangha.*

22. BRAHMI INSCRIPTIONS, PULLAR, DISTRICT NAGPUR.—Two inscriptions in Prakrit language and Brahmi script assignable to about the second century B.C. are found engraved on the wall of a cave, now in ruins, on a hillock here. One of them, in two lines, reads: (1) *Vasava-dalaka-putasa* (2) *A[cha* or *va]lasa matikamam.* The other inscription reads: *Okiyasa.*

23. INSCRIPTION, MANAKESHWARA, DISTRICT OSMANABAD.—This inscription, found in the Manakeshwara Mahadeva temple, is dated Saka 1141 (A.D. 1219) and belongs to the time of the Yadava king Singhana.

MYSORE

24. Two KADAMBA INSCRIPTIONS, MUTTAGI, DISTRICT DHARWAR.— Of these two Kannada inscriptions, one belongs to the reign of Kadamba Jayakesin II and is dated in his forty-second regnal year, Chitrabhanu (A.D. 1162-63). It records a number of grants for the daily offerings to and renovation (of the temple) of the god Sullesvara and for the feeding of the priest by Bontagavunda, Chavagavunda, the *aruvatt-okkalu* and the *tamma-Ugas.* The other inscription is dated in the fifteenth year (A.D. 1201) in the reign of Kadamba Jayakesin III. It registers a grant of a portion of his wet-land, received by him as *vmbah,* by Kavagavunda for the daily worship and offerings to the god Somanatha referred to as Tribhuvami, and for the clothing of the priests.

25. THREE KADAMBA INSCRIPTIONS, UGGINAKERI, DISTRICT DHARWAR.—Of these Kannada inscriptions, nos. 1 and 2 are engraved on the same slab. No 1, which is undated, mentions Jayakesin II as the feudatory of Chalukya Bhulokamalla (Somesvara III) and registers grants of wet and dry lands by Padavalar-Udayaditya money (mo) by Ugura-munurvaru and oil by the Ainurvaru to the deity Mukesvara. Nos. 2 and 3 belong to the

reign of Sivachitta-Permadi and are dated in his twenty-fifth regnal year, Khara (A.D. 1171). While no. 2 registers a grant of land by Padavalar-Udayaditya for the daily offerings to the god Mukesvara and for the feeding of the priest of the temple, no. 3 records grants of land by the same person for the daily worship of and offerings to the god Padavalesvara.

26. HOYSALA INSCRIPTION, RAMAPATNA, DISTRICT MYSORE.—This Kannada inscrip tion belongs to Bittiga *alias* Tribhuvanamalla Virganga Hoysala (i. e. Vishnuvardhana) and is dated Saka 1047, Krodhi (A.D. 1125). It seems to record grants of lands, oil etc., to the *basadis* caused to be constructed by the brothers Chatta *alias* Chattimayya and Chava for the merit *(paroksha-vinaja)* of their mother Kammawe.

27. INSCRIPTION, BANAVASI, DISTRICT NORTH KANARA.—This worn-out inscription on a slab, in Sanskrit language and in southern characters of about the fifth century A.D., refers itself to the third regnal year of a king (name lost), who was probably a Kadamba.

28. THREE INSCRIPTIONS, BILIGI, NORTH KANARA.—One of them on a slab set up in front of the Virupaksha temple, in Sanskrit and Kannada languages and Kannada script, is dated Saka 1493 (A.D. 1570). It records the construction of the Virupaksha temple along with the *gopura, prakara* etc., by Vira Narasimha or Vira Narasappa-vodeya, the chief of Svetapura (Biligi). The other two inscriptions, on two slabs set up inside the Ratnatraya-basadi, are also in Sanskrit and Kannada languages and in Kannada script. One of them, dated Saka 1510 (A.D. 1588), in the reign of Vijayanagara king Venkata II ruling from Penugonda, records the construction of the *basadi* by Rangappodeya, and of the *mandapa, munivasa* etc., and the installation of the images and the grants made to provide for worship and maintenance by his son Ghantendra *alias* Ghantannavodeya *alias* Mamnodeya in Saka 1503 (A.D. 1581). It refers also to Bhattakalanka, the Jaina preceptor of the chief. The other inscription, dated Saka 1515 (A.D. 1592), records a full genealogy of the chief for eight generations. It refers to. the various similar benefactions made by Ghantendra and his ancestors and to the line of preceptors down to Bhattakalanka to whom the composition of the record is attributed.

29. EARLY KADAMBA INSCRIPTION, GUDNAPUR, DISTRICT NORTH KANARA.—Engraved on the four faces of a square pillar, this inscription is written in southern box-headed characters of about the end of the fifth century A.D. and in Sanskrit language. It belongs to the reign of the king Ravivarman of the early Kadamba dynasty and registers gifts, made by this king, of some villages and lands, after purchasing them from *brahmanas,* to the temple of the god Manmatha built by him. It gives the genealogy of the king as mentioned in the famous Talagunda pillar inscription of Santivarman and also states that Mayuravarman was the son of Bandhushena who was the son of Virasarman.

30. INSCRIPTION, KANSUR, DISTRICT NORTH KANARA.—This Kannada inscription on a hero-stone, dated in Kali 4282 (A.D. 1181), belongs to the reign of *Mahamandalesvara* Kirttivarmman of the Kadamba family, who was governing Banavasi-12,000 and Hanungal-500 and records the death of *Holla-dandanqyaka* in the battle fought at Gimn-nala-gundi.

31. TWO INSCRIPTIONS, KODKANI, DISTRICT NORTH KANARA.—An inscription in Kannada engraved on a hero-stone lying near a dilapidated Siva temple, belongs to the

reign of *Banavasi-puravaradhisvara Mahamandalesvara* Parikantadeva and is dated Saka 1039 (A.D. 1117). It records the death of Niduka in a battle fought at a place called Hubbase. Another inscription, which is badly damaged, also belongs to the reign of the same chief and seems to record a grant of money in connection with the heroic death of Mamalideva.

32. INSCRIPTION, KADANDALE, DISTRICT SOUTH KANARA.—This inscription, in Kannada language and characters of the eighth century A.D., engraved on an octagonal stone in the field near the Subrahmanya temple, records a grant of land called Paripali to Kunda[pu]la-bhatara by Ere-Boygavarmmarasa.

RAJASTHAN

33. INSCRIPTION, AKHEPURA, DISTRICT AJMER.—A stone inscription, in local dialect and Nagari characters and dated Vikrama 1686 (A.D. 1629), mentions a certain *Maharaja* (name not clear), and seems to record a gift of land.

34. COPPER-PLATE INSCRIPTIONS, CHAUNDIA, DISTRICT AJMER.—Of the two charters, one, in local dialect and Nagari characters, belongs to the reign of the Rathod ruler Vijaya-simgha. Dated Vikrama 1825 (A.D. 1768) and issued from Takhatagadha in Jodhapura, it records the grant made by *Maharaja Kamvara* Phatesimgha of the Chamvamdiya village in Ajmer to *Gusami* Ramapuri. The other charter, in local dialect and in late Nagari characters, seems to record that *Tha* (*Thakura)* Pramapuji entrusted the right to worship in the temple of the god Varaha to *Gusami* Harisighasna Bharathi. It also refers to the king Prathiraja (Prithviraja I) who is stated to have arranged for the worship in the temple of Varaha in Vikrama 1211 (A.D. 1155).

35. INSCRIPTION, GANGWANA, DISTRICT AJMER.—An inscription on a memorial slab, in local dialect and Nagari characters and dated Vikrama 1796 (A.D. 1739), records the death in a skirmish, of *Thakura* Kusalasigha of the Sisoda family and a resident of Sahipura.

36. INSCRIPTION, NAND, DISTRICT AJMER.—An inscription, in local dialect and Nagari characters, refers to *Maharaja* Manasigha, probably the Rathod ruler of Jodhpur and records the death of *Kavara* Ajitasigha in Vikrama 1871 (A.D. 1815) at the village of Namda and the construction of his memorial in Vikrama 1889 (A.D. 1832).

37. INSCRIPTIONS, PISANGAN, DISTRICT AJMER.—An inscription on a big stone, in Sanskrit language and early Nagari characters is dated Vikrama 1053 (A.D. 996-97) and appears to be a memorial record. It mentions Damodara, son of Vishnu. Dated Vikrama 1700 (A.D. 1644), another stone inscription in local dialect and Nagari characters mentions a *kubhara* and refers to his wife as a *mahasati.* A third inscription also in local dialect and Nagari characters records the death in Vikrama 1716 (A.D. 1659-60) of Gahalota Thakarasi in a battle at Pisangana and the setting up of the memorial stone in Vikrama 1718 (A.D. 1662). Reference is also made to 12 Rajaputas in connection with a battle.

38. COPPER-PLATE INSCRIPTION, PUSHKAR, DISTRICT AJMER.—This inscription, in local dialect and corrupt Sanskrit and in Nagari characters, belongs to the reign of the Guhilot king Sangramasimgha. Dated Vikrama 1567 (A.D. 1510), it records the royal

grant of two villages called Paseli and Tiloru to the Varaha temple at Pukara-Tiratha (i. e. Pushkar).

39. INSCRIPTION, TILORA, DISTRICT AJMER.—This inscription, in Nagari characters of about the twelfth century A.D., engraved on the pedestal of an image of which only the feet are now preserved, reads: *Sri-Somaladevi.*

40. FRAGMENTARY INSCRIPTIONS, CHITORGARH, DISTRICT GHITORGARH.—One of them, in Siddhamatrika characters of about the ninth century and in Sanskrit language, refers to Mahappa as a donor and records the consecration of the god Nagesvarasvamin. It mentions Siddha, probably as the composer of the record. Another record, in Sanskrit language and Nagari characters and dated Vikrama 1344 (A.D. 1287), refers to the ruler Samvarasimha, evidently of the Guhila family.

41. PRAKRIT PILLAR-INSCRIPTION, PRATAPGARH, DISTRICT CHITORGARH.—A Prakrit inscription, in Brahmi characters of about the second century B.C, engraved on a pillar set up in front of the Amlesvara temple at Pratapgarh, records the making of the *selabhuja* by the *Bhagavata* Utararakhita, the son of Pona and a resident of Aparakada.

42. JAINA INSCRIPTIONS, JAMDOLI, DISTRICT JAIPUR.—Of two inscriptions engraved on two stone beams in the Siva shrine of the Hanuman temple at Jamdoli, both in Sanskrit language and Nagari characters, one is dated Vikrama 1217 (A.D. 1160) and records the obeisance of the *Senamnaya* at the footprints of Chhatrasenadeva caused to be carved at the Chandraprabha-chaityalaya. The other inscription, which is undated but is palaeographically assignable to the twelfth century, contains five verses, composed by *pandita* Nishkalankasena, the brother of Akalankasena, in praise of the Chandraprabha Jina and of some pontiffs whose names are given as Amritasena, Samyamasena-suri, Brahmasena and Yogasena. The last-named pontiff is described as one whose feet were worshipped by the Turushkas.

43. MEMORIAL INSCRIPTIONS, GHATIYALA, DISTRICT JODHPUR.—Four memorial inscriptions were copied in the site called Khaku-devalam at the place. All are in corrupt Sanskrit language and Nagari characters. They bear dates Vikrama 1226, 1227, 1232 and 1248 and commemorate the death of different individuals.

44. MEMORIAL INSCRIPTIONS, CHHOTI KHATU, DISTRICT NAGAUR.—Dated Vikrama 800 (?), 845 and 860 respectively, three memorial inscriptions, in corrupt Sanskrit and Siddhamatrika characters, record the death of some ladies. Of these, the second inscription records the death of Mamma, wife of one Bauda and the third records the death of a lady (name not clear), the wife of Nanna.

TAMIL NADU

45. BANA ^ INSCRIPTION, RAMAKRISHNARAJUPET, DISTRICT CHINGLEPUT.—This incomplete Tamil inscription, in Tamil characters of about the ninth century, engraved on a loose slab kept in the Visalesvara temple, refers to the reign of Bana Vijayaditya.

46. INSCRIPTION, BARANDUR, DISTRICT DHARMAPURI.—This Tamil inscription on a hero-stone, in Tamil characters of about the twelfth century, records the death of

Maradevan, son of Markamindan of Varandur in Murasu-nadu, a sub-division of Rajen-drasola-valanadu in Mudikondasolarhandalam, after foiling the attempt of Ammanan Padimidevan to capture Varandur and killing, after pursuit, five of his horses.

47. INSCRIPTION, BERIKAI, DISTRICT DHARMAPURI.—This Tamil inscription on a slab, in Tamil characters of the thirteenth century, records the gift of income from some levies on the *tirumadaivilagam* to the god Tiruvattisvaramudaiyar of Verkayam in Masandi-nadu to provide for buildings and maintenance by Singarayyar, his son Somanadevar *alias* Ghellappillai Siddhakumarar and others described as *Rayasiddhar* belonging to various *mandalas,* for the merit of (Hoysala) Vira-Vallaladevar. Singarayyar is also described as the preceptor of Kulasekharadevar.

48. HOYSALA INSCRIPTION, HOSUR, DISTRICT DHARMAPURI.—This inscription in Tamil, on a rock-boulder near the Venkataramana temple on the hill east of the town, is dated Saka 1049 (A.D. 1128) and refers to the reign of Vishnuvardhana. It records the grant of lands in Ilandai *alias* Chittiramelinallur along with the income from taxes for the feeding expenses and repairs to Sri-Parsva-Jinalaya built by *dandanayaka* Gangippayyan at Sevidapadi in Murasu-nadu by the founder, his son *dandanayaka* Echchimayyan and *dandanayaka* Kettandiyar.

49. TWO HERO-STONE INSCRIPTIONS, MACHINAYAKANAPALLI, DISTRICT DHARMA-PURI.—One of these two Kannada inscriptions in characters of about the ninth century, belonging to the reign of (Ganga) Sivamara mentions his feudatory Vaidumba Ramaraja. It records the death of a hero (name not given) in a cattle-raid. Vaidumba Ramaraja is known for the first time through this record to have been the feudatory of Sivamara (of. *Indian Archaeology 1969-70—A Review,* Epigraphy, no. 1). The other, also in characters of about the ninth century, belonging to the reign of (Nolamba) Pallava Mahendradhiraja records the death of Vemturagamunda in a cattle-raid and states that the inscribed stone was set up by his son Duraga.

50. VIJAYANAGARA INSCRIPTION, VENKATESAPURAM, DISTRICT DHARMAPURI.------This inscription in Tamil, on a slab" in a field east of the village and dated in Saka 1268 (A.D. 1347) during the reign of Ariyappa-Udaiyar (i.e. Harihara I), records the gift of the village Alagiyanpalliagaram as *kudanga-sadanam* to the Periyanattavar in Masandi-nadu by *mahamandalesvara* Aliya Vallappa-denayakkar.

51. VIJAYANAGARA COPPER-PLATE INSCRIPTION, GOVERNMENT MUSEUM, MADRAS. -----This inscription, originally from the village of Manganallur, Wandiwash Taluk, North Arcot District, is written in Nandi-Nagari characters and in Sanskrit and Telugu languages. It is dated Saka 1347 (A.D. 1425-26) and belongs to the reign of the Vijayanagara king Devaraya II. It registers a grant, made by the king, of the village of Mamganaluru situated in the Padavidurajya, after re-naming it as Devarayapuram, to an ascetic called Indra-giri.

52. VIJAYANAGARA INSCRIPTION, ARPAKKAM, DISTRICT NORTH ARCOT.—This Tamil inscription, dated Saka 1492 (A.D. 1570) in the reign of the king Tirumalaideva-maharaya, records the grant of the village Arpakkam along with its hamlets to provide for the main-tenance and repairs of the temple of Tiru-Annamalai-udaiya nayanar at Tiruvannamalai.

53. PANDYA INSCRIPTIONS, KOSALAI, DISTRICT NORTH ARCOT.—Two inscriptions in Tamil characters of about the thirteenth century are engraved, along with the fish-emblem of the Pandyas, on two stones set up on either side of the road facing one another. They refer to the sixth division of the road called Vikramapandyadevan-tiruvidi probably as starting from the findspot of the stones.

54. PALLAVA INSCRIPTION, TAKKOLAM, DISTRICT NORTH ARCOT.—This inscription in Tamil language and script on the *kumuda* of the north wall of the Jalanathesvara temple is dated in the sixth year in the reign of Aparajita and seems to refer to a gift of land to the temple.

55. CHOLA INSCRIPTIONS, ENKAN, DISTRICT THANJAVUR.—A Tamil inscription dated in the twelfth regnal year (A.D. 1131-32) of Vikramasola records the confirmation of a gift of lands that were enjoyed as tax-free upto the fortieth regnal year of Periyadevar Kulottunga Chola by the deities Tiruvenesarudaiya-mahadeva, Brahmisvara-mudaiya-mahadeva and Sri-Varahadeva in the temple of Tiruvensarudaiya-mahadeva in Ingan *alias* Pavitramanikkach-chaturvedimangalam in Inga-nadu, a sub-division of Kulottungasola-valanadu. Another inscription of the twenty-first regnal year (A.D. 1199) of Kulottunga III records the royal order issued to the *sabha* of Ingan asking them to pay their annual taxes in kind and cash in the manner specified.

56. CHOLA INSCRIPTIONS, KOTTUR, DISTRICT THANJAVUR.—Of the many fragmentary Chola inscriptions in Tamil characters of about the tenth century on the walls of the front *gopura* in the Kolundisvarasvami temple, some refer to Sripanchavan-mahadevi, the queen (of Rajaraja I), and to the shrines called Panchavan-mahadevi-isvaram and Gunavardhisvaram.

57. PALLAVA INSCRIPTION, SADAIYARKOVIL, DISTRICT THANJAVUR.—This Tamil inscription on a slab built into the *vimana* of the Sadaiyar temple is dated in the twenty-fifth year in the reign of Nripatungavarman. It registers a gift of gold equal to *palangasu* for feeding *panmahesvarar* on the day of the flag-hoisting festival.

58. CHOLA INSCRIPTIONS, THANJAVUR, DISTRICT THANJAVUR.—A Tamil inscription, in characters of about the tenth century, on a stray stone preserved in the Brihadisvara temple, is dated in the fourth regnal year of the Parakesarivarman "who took the head of Pandya , (i.e. Aditya II). It records an earlier gift of money by Pichchan Vikramabarani, a maid-servant residing in Ponnamaraiyar-angadi for a perpetual lamp for the god lahkkuladevar, made in the eleventh regnal year of Rajakesarivarman. Another inscrip tion on the wall of the *gopura* belonging to the time of Rajaraja I, in Tamil and Sanskrit verses and written in the Tamil and Grantha characters, seems to endow the king with the the title *Naratungan* and to describe poetically the plight of the vanquished Kerala kings and their queens.

59. INSCRIPTIONS, KANNANUR, DISTRICT TIRUCHCHIRAPPALLI.—An inscription of the Chola king Rajakesarivarman, built into the wall, to the left of the entrance into the *ardha-mandapa* of the Balasubrahmanya temple, in Tamil characters of about the eleventh century, seems to record a gift of land to god Subrahmanya. Another inscription to the right of the entrance, engraved in Tamil characters of about the twelfth century and dated

in the third regnal year of the Pandya king Udaiyar Srivallabha, records a grant of land by the *ur* of Kannanur for burning a perpetual lamp to the same deity.

60. CHOLA INSCRIPTIONS, GOPURAPPATTI, DISTRICT TIRUCHCHIRAPPALLI.—Two Tamil inscriptions belonging to the reign of Uttamachola are dated in the twelfth year and one in the sixteenth year of his reign. The first records the gift of five standing *(nilai)* lamps to the temple of Avanisvaram in Pachchil in Malanadu by Sembiyan-mahadevi, the queen of Gandaraditta-chola. The second records the gift *of a prabha* and a *padapitha* to the metal image of Avanisundara in the same temple by Nakkan Viranarayani, the queen of Uttamachola. The image is said to be taken out in procession during the festival on the day of Visakha in the month of Vaikasi. The third records the installation of a metal image of Uma-Paramesvari with a *prabha* and a *pada-pitha* as a consort of Avanisundara referred to above for the same purpose.

61. CHOLA INSCRIPTION, GOPURAPPATTI, DISTRICT TIRUCHCHIRAPPALLI.—This Tamil inscription commencing with the *prasasti 'Tirumagal pola'* of Rajaraja I is dated in the twenty-first year of his reign. It records the arrangements made by Marttandan Uttaman of Avanam who was administering Rajasraya-valanadu for conducting special bath and food offerings on the day of Sadaiyam every month, the king's natal star and for processional festival and food offerings on the day of Avittam every month, the natal star of Alvar Kundavai-piratti, the elder sister of the king.

62. CHOLA INSCRIPTION, SIVALAPPERI, DISTRICT TIRUNELVELI.—This Tamil inscription containing the *prasasti 'Pugalmadu vilanga'* of Kulottunga I is dated in the forty-first year of his reign. It is engraved on a stone used as a door-step leading to the central shrine in the Alagar temple. It records the grant of tax-free land to the temple by the *maha-sabhaiyar* of Gangaikondasola-chaturvedimangalam in Kilkalak-kurram in Mudikondasola-valanadu in Rajarajap-Pandinadu.

UTTAR PRADESH

63. JAINA IMAGE INSCRIPTION, MAHOBA, DISTRICT HAMIRPUR.—This damaged inscription is engraved on the pedestal of a mutilated stone image of a Jaina Tirthankara. It is written in Nagari characters and local dialect and is dated Vikrama 1201 (A.D. 1145).

64. ROCK INSCRIPTION, MAHOBA, DISTRICT HAMIRPUR.—This undated inscription is engraved on the lower side of a rock-slab which, together with two other rock-slabs, forms a small cave-shelter on the hill near the town. It is in Nagari characters of about the twelfth century and seems to refer to a *kirtti* to the god Jayakanthadeva and to a *brahmana* Jalhana, who is called *nagarapala.*

65 INSCRIPTIONS, RAHNAS, DISTRICT KANPUR— TWO inscriptions are engraved in Sanskrit language and Nagari characters of the thirteenth century, on two loose stone-slabs lying in a ruined temple site locally called Lathiyare-Baba, on the outskirts of the village. One of them is undated but refers itself to the reign of Devapaladeva, and records the construction of a temple jointly by the *brahmanas* Bhatta Udha and Hame and the *karamka* Karame. The other inscription, dated Vikrama 1320 (A.D. 1263), merely mentions the names of some persons, such as Devagana and Sridhara.

ARABIC AND PERSIAN INSCRIPTIONS

ANDHRA PRADESH

1. INSCRIPTION OF THE QUTB SHAHIS, DISTRICT NALGONDA.—The Persian version of a bilingual epigraph from Pangal, recording the repairs of a dam etc., which was noticed earlier, was re-examined. It was found to contain the date A.H. 978, and Shuhur 971 (A.D. 1571) and not A.H. 958. It was also found to contain the additional information that all the lands from the embankment of (the river) Mushi in Induparal (Yindupukela of the Telugu version) to the bank of the Krishna river (irrigated) by the canals, tanks and ponds are subject to *dasband* (levy) revertible to *qasba* Pangal and (from the revenue cess of the lands irrigated) by the dam the Muslims and the king and Hindus would have some share.

DELHI

2. INSCRIPTIONS OF THE MAMLUK SULTANS OF DELHI.—The earliest dated inscription forms the solitary lithic record of Sultan Mu'izzu'd-Din Bahram Shah, son of Ututmish and is a valuable discovery of the year. The epigraph refers to the conquest of India by Bahram Shah in A.H. 637 (A.D. 1239-40), through the efforts of Malik A'zu'd-Din Balbali who has been erroneously mentioned by Persian chroniclers as Malik 'Izzu'd-Din Balban or Balban-i-Buzurg. Of the two new records pertaining to the reign of Balban, one refers to the construction of a charitable building *(khanqah* or monastery) for the comfort of the *faqirs,* by prince Muhammad, the eldest son of Balban. The other inscription assigns the erection of a mosque at Hadrat-i-Dihli (Mamluk Delhi) in A.H. 678 (A.D. 1279-80) to Khan-i-A'zam Fakhru'd-Din, a prominent noble of the court of Balban. Another interesting epigraph records the death of Sultan Kaiqubad, grandson of Balban, who is stated to have made the people of Delhi prosperous and happy.

3. INSCRIPTION OF THE KHALJIS.—An inscription in late characters mentions the name of Sultan 'Alau'd-Din and date of his demise as A.H. 716 (A.D. 1316). The inscriptional tablet may have originally belonged to the ruined tomb of 'Alau'd-Din Khalji standing near the Qutb Minar.

4. INSCRIPTION OF THE TUGHLUQS.—An interesting inscription assigns the construction of the tomb of Khan Jahan Maqbul Khan, Prime Minister of Firuz Shah Tughluq to his son Khan Jahan Junan Shah in A.H. 776 (A.D. 1374-75). The marble inscriptional slab may have been set up on the tomb of the former Khan Jahan at Delhi.

5. INSCRIPTION OF THE LODIS.—A new inscription of Sikandar Lodi refers to the construction of a well in the garden of Malik Tahir, son of Padam (?), son of Malik Jud (?) Nuhani under the supervision of Khidr Khan in A.H. 906 (?) (A.D. 1500-01).

[1] Dr. Z. A. Desai, Superintending Epigraphist for Arabic and Persian Inscriptions of the Survey, assisted by Sarvashri A. A. Kadiri, S. S. Hussain and M. F. Khan, found, copied, examined and reported on about one hundred and seventy-five inscriptions during the year, of which the more important ones are noticed here. Inscription nos. 2-8 were discovered, copied, examined and reported by Shri W. H. Siddiqi, of the Survey, while no. 13 was received from the Vice-Chancellor, Nagpur University and those under no. 16 from the Superintending Archaeologist, Western Circle, Baroda and the Chief Epigraphist, Mysore. Dr. Z. A. Desai, to whom the inscriptions were sent for compilation, feels that inscription nos. 2-4, 6 and 7 (excepting the one from Garhi) 'do not represent genuine epigraphs'.

6. INSCRIPTION OF THE SURS.—An outstanding find among the new inscriptions from Delhi is the earliest lithic record of Sher Shah which mentions that an exquisitely ornamented palace was built in Din Panah which is designated as Daru's Salam (capital) by the orders of the emperor under the supervision of Khalil, a trusted servant of Sher Shah in A.H. 944 (A.D. 1537-38), two years earlier than the accepted date of Sher Shah's conquest of Delhi. The inscription incidentally provides first hand evidence to prove that Humayun had already completed his city Din Panah before the Sur conquest of Delhi.

7. INSCRIPTIONS OF THE MUGHALS.—An interesting epigraph assigns the construction of a reservoir *(haud)* for drinking water for public to the Mughal prince Dara Shikoh in A.H. 1060 (A.D. 1650). This is perhaps the only inscription of this prince recording his active interest in public welfare. An important bilingual inscription from an old bridge at Garhi, of the last Mughal emperor Bahadur Shah Zafar, records both in Nagari and Persian prose and verse the construction of a bridge for protecting the area from floods, in A.H. 1274 (A.D. 1857) by Rai Mukund Lai Misr, *Amin-i-kul Sarkar-i-Shahi* (Chief Revenue Officer of the Entire Kingdom), son of Diwan Singh, son of Kesh Chand Misr, of the Pathak comunity, old resident of Jamalpur Tohana, then living in Delhi.

8. MISCELLANEOUS INSCRIPTION.—An undated but unique inscription from a one-walled mosque in Mehrauli assignable to the fourteenth-fifteenth centuries, contains the text both in Arabic and Persian describing the physical appearance of the Holy Prophet. The epigraph further records that one who looks at it would be immune from the fire of hell.

GUJARAT

9. MISCELLANEOUS INSCRIPTION, DISTRICT AHMADABAD.—An inscription dated A.H. 1135 (A.D. 1722-23) from Ahmadabad assigns the construction of a step-well to one Raghunath Das.

HARYANA

10. INSCRIPTION OF THE MUGHALS, DISTRICT GURGAON.—A record from Faridabad, District Gurgaon, states that Farid (entitled) Murtada Khan, constructed a mosque in A.H. 1014 (A.D. 1605-06), during the reign of Jahangir.

MADHYA PRADESH

11. INSCRIPTIONS OF THE SULTANS OF MALWA, DISTRICTS UJJAIN AND VIDISHA.—A new inscription of Alp Khan (Hoshang Shah Ghori) was found at Barnagar, District Ujjain. It records the erection of some structure in A.H. 820 (A.D. 1418) by Shaikh Sa'du'd-Din and quotes the full name and titles of the king Husamu'd-Dunya wa'd-Din Alp Khan. An extremely interesting but fragmentary record, dated A.H. 908 (A.D. 1502-03), was found at Bhonrasa, District Vidisha. It records the construction of a mosque in the market at *qasba* Bhonrasa, in the *shiq* of Chanderi by one Maliku'sh-Sharq (name lost). It supplies for the first time the full name and titles of the Malwa Sultan thus: Ikhtiyaru'd-Daulat wa'd-Din Abu'l-Mansur 'Abdu'l-Qadir Nasir Shah, son of Ghiyath Shah, son of Mahmud Shah al-Khalji.

12. INSCRIPTIONS OF THE MUGHALS, DISTRICT VIDISHA.—A new epigraph of Akbar was found at Sironj, District Vidisha. It assigns the construction of a step-well in A.H. 987 (A.D. 1579-80) to Ildum Qara Bahadur, son of Jahan Shah Andijani, who was a servant of Shihabu'd-Din Ahmad Khan. A record of Akbar, found at Bhonrasa which was noticed earlier, was re-examined. It records that Khan-i-Jahan Baiqara constructed *pucca* Sarai and excavated a well for public use in A.H. 992 (A.D. 1584). A new record of Jahangir, set up in the first year of his reign was found at Bhoria in the same District. It contains the text *of a farman* addressed to various officers such as *Jagirdars, Karoris, Rahdars* and *Gurdharbans* of the *qasba* of Sironj announcing the abolition of the levy of *zakat* in the entire dominions with a view to ensure the welfare of the general public, more particularly the traders, and threatening punishment to those who disobey the order. A solitary epigraph of Aurangzeb was found at Pathari, in the same District. It records the erection of a mosque in the regnal year 45 (A.H. 1114=A.D. 1703). A new record of Muhammad Shah dated in his 28th regnal year A.H. 1158=A.D. 1745) was found at Bhonrasa (pl. LXXI). It refers to the repairs carried out to the fountain of a well by Nand Ram Chaudhari. In an inscription set up at Sironj in the first regnal year of Akbar II (A.H. 1222=A.D. 1807-08), the construction of a mosque is mentioned. Another epigraph of the same emperor was found at the same place; it assigns the construction of an 'Idgah to Nawwab Amiru'd-Daula Muhammad Mir Khan Bahadur (of Tonk) and Nawwab Mukhtaru'd-Daula Muhammad Shah Khan Bahadur, in the first regnal year corresponding to A.H. 1223 (A.D. 1808).

13. MISCELLANEOUS INSCRIPTION, DISTRICT VIDISHA.—An inscription found at Sironj contains a *ghazal* of the celebrated Persian poet Hafiz, which is stated to have been inscribed by Muhammad Dildar in deference to the wish of the late saint Mirza Jami, who died in A.H. 1106 (A.D. 1694-95).

MAHARASHTRA

14. INSCRIPTION OF THE NIZAM SHAHIS, DISTRICT KOLABA.—A new direction-stone of of the time of Burhan Nizam Shah III was found at Diva-Agar. Dated Shuhur 1010 (AH. 1018=A.D. 1610), it contains instructions regarding the directions—pointing out on the east, the *pargana* Borlai, on the west, the sea, on the south the *pargana* Shriwardhan and on the north, the *mu'amala* (i.e. district) Danda.

MYSORE

15. INSCRIPTIONS OF THE TUGHLUQS, DISTRICT BIDAR.—A known epigraph of Muhammad bin Tughluq Shah from Kalyani, District Bidar, recording the construction of a mosque in A.H. 734 (A.D. 1333) was re-examined and the names of the builder, Burhan (son of) Sama Safiri and the scribe, namely Qutb, were deciphered.

16. ADIL SHAHI INSCRIPTIONS, DISTRICT BIDAR.—Re-examination of another inscription from Kalyani, dated A.H. 915 (A.D. 1586-87) in the reign of Ibrahim 'Adil Shah II, has brought out the fact that the foundation of the mosque in the *peth* Shahpur was laid by the Prime Minister Dilawar Khan, and that it was ultimately completed by Amin Khan.

17. MISCELLANEOUS INSCRIPTION, DISTRICT BANGALORE.—An inscription found at Bangalore records that a mosque known as the mosque of Sar Qadi Sahib, was constructed by its *mutawalli* (i.e. Chief Trustee) Muhammad 'Abin Sharif Sultani, Sar Qadi of the town in the vicinity of Bangalore in A.H. 1137 (A.D. 1724-25).

RAJASTHAN

18. MISCELLANEOUS INSCRIPTIONS, DISTRICTS AJMER AND CHITORGARH.—A fragmentary record, found at Ghitorgarh, containing only the portion of the text recording part of the date, is in all probability a record of 'Alau'd-Din Khalji (late thirteenth or early fourteenth century). An epigraph found at Ajmer, dated A.H. 1214 (A.D. 1799-1800) contains the text of a notice put up at the instance of the Ajmer saint forbidding the bringing of the dead bodies to Ajmer for burial; it is also made applicable to the Pirzadas and the attendants of the Dargah. In another similar notice, issued three years later by Mirza Gurgin Baig Khan, the *subadar* of the town, some sort of concession in forced duties in respect of the Muslims appears to have been given also at the instance of the saint.

TAMIL NADU

19. MISCELLANEOUS INSCRIPTIONS, DISTRICT MADRAS.—A metrical record, composed by one Fatih was found at Madras. It records the construction of an 'Idgah, with a tank and a well, in A.H. 1135 (A.D. 1722-23) by Ahsan Khan. According to another metrical epigraph found at the same place, Sayyid Ahmadu'llah, son of 'Ataullah, who held the post of" the *Qadi* and was a learned theologian and an acclaimed teacher, expired in A.H. 1136 (A.D. 1723-24).

UTTAR PRADESH

20. INSCRIPTIONS OF THE MUGHALS, DISTRICTS JAUNPUR AND PRATAPGARH.—A damaged epigraph of Akbar found at Manikpur, District Pratapgarh, assigns the construction of a tomb to Raji Mustafa. A known inscription of Shah Jahan, from Jaunpur, dated A.H. 1051 (A.D. 1641-42) has, on re-examination, yielded the name of the builder, Kalbi, and that of the scribe, Sultan Sarhindi, who appears to have been a first rate calligrapher.

21. MISCELLANEOUS INSCRIPTIONS, DISTRICTS ALLAHABAD, JAUNPUR, MIRZAPUR AND PRATAPGARH.—A damaged epigraph found at Manikpur records that the demise of Sayyid Nuru'd-Din took place in A.H. 921 (A.D. 1515-16). It is in verse and was composed by (Shah Raji) Hamid. Another record, found at the same place and composed by the same Raji Hamid, places the demise of Sayyid Raji Mubarak, a saint, in A.H. 965 (A.D. 1557-58). By a re-examination of an inscription from Jaunpur, recording the date of Shaham Baig's martyrdom, the date is determined to be A.H. 966 (A.D. 1558-59) and not A.H. 969; also the chronogram is composed by Sultan, i.e., the celebrated Akbar's general and governor of of Jaunpur 'Ali Quli Khan-i-Zaman. A third record from the same place was, on re-examination found to yield A.H. 976 (A.D. 1568-69) as the date of construction of the pulpit of the 'Idgah. A re-examination of another partially published epigraph from the same place, recording the construction of the same 'Idgah, during the governorship of Mun'im Khan by one of his aides, has brought to light the name of its writer, Muhammad Muhsin, son of Sayyid Hashim, who has described himself as the Khan's servant, as well as the date,

A.H. 976 (A.D. 1568-69). A new epigraph was found at Chunar; it records the construction of the gate of the fort in A.H. 981 (A.D. 1573-74). Another known inscription from Jaunpur, though undated, is assignable to the sixteenth century on palaeographical grounds. It is also found to contain the name of the calligraphist Fakhru'd-Din (son of) Kabir. An inscription found at Mariyahun, District Jaunpur, was earlier noticed. It has been re-examined and found to yield A.H. 1005 (A.D. 1596-97) and not A.H. 990 (A.D. 1582-83) as the date of construction of a mosque by Khairu'd-Din; also the composer of its chronogram was his son (name not given), and its scribe was Husain. A fragmentary inscription found at Jaunpur, assignable to the seventeeth century on palaeographical grounds, is a fine specimen of calligraphy and seems to record the construction of a tomb. A new record found at Allahabad, records the construction of a mosque called *Masjid-A'zam* by Mu'azzam Khan, son of A'zam Khan in A.H. 1118 (A.D. 1706-07). Another new epigraph found at Jaunpur, records that Mir Husain 'AH, son of Hasan Aqa attained martyrdom in A.H. 1109 (A.D. 1697-98). An epitaph found at Allahabad recording the demise in A.H. 1220 (A.D. 1805) of Pusa Bibi, wife of Karamat 'AliKhan, a grandson of Yasin Khan and daughter of Niamat Khan Jama'dar, gives interesting details about the father; according to this, he originally belonged to Du Hazari, in District Chittagong. She is stated to have died while giving birth to a daughter, who is also mentioned as having expired after forty-six days.

WEST BENGAL

22. INSCRIPTION OF THE MAMLUKS, DISTRICT CALCUTTA.—An epigraph, originally from Abohar in Punjab, now preserved in the Indian Museum, Calcutta, recording the construction of a well in the time of Shamsu'd-Din Iltutmish, has been previously noticed a number of times, but its date not satisfactorily read; it is A.H. 635 (A.D. 1237-38).

23. MISCELLANEOUS INSCRIPTIONS, DISTRICT CALCUTTA.—A fragmentary record, preserved in the same Museum, assignable to the twelfth-thirteenth centuries on palaeo graphical grounds, contains religious text and is a fine specimen *of Kufi* and *Naskh* styles of calligraphy. Another fragmentary epigraph from the same place, assignable to the thirteenth century, is also remarkable for its *Naskh* style of calligraphy.

m. NUMISMATICS AND TREASURE-TROVE[1]

BIHAR

1. GUPTA COIN, KESARIA, DISTRICT CHAMPARAN.—A gold coin of the Archer Type of Chandragupta II, along with a copper pot was found while digging a water-channel near the village.

GUJARAT

2. MEDIEVAL COINS, RAS, DISTRICT KHEDA.—A hoard of one hundred and forty-one silver coins and a gold amulet, now in the possession of the Mamlatdar of Borsad Taluka, was examined and the coins were found to be of the Sultanate period. Of these, ninety-two were the issues of Alau'd-Din Muhammad Shah of the Khalji Dynasty j and forty and nine coins were the issues respectively of Ghiathu'd-Din Tughlaq and Muhammad-Bin Tughlaq.

HIMACHAL PRADESH

3. INDO-GREEK COINS, LACHORI, DISTRICT CHAMBA.—Fifteen silver coins of the lndo-Greek kings, Appollodotus, Menander and Antimachos were discovered at village Lachori, about 24 km. to the north-west of Chamba (see below, p. 76). These coins, contained in a bronze vessel, constitute only a fragment of the hoard, the large part of which was washed away in the rivulet.

MADHYA PRADESH

4. COPPER COIN, MANDSOR.—A rare copper coin bearing the legend *Sibijanapadasa* with tree and hill symbols was discovered.

5. GUPTA COINS, VIDISHA.—A square copper coin of Chandragupta II bearing the figure of Garuda on the obverse and a *purnaghata* on the reverse, a unique silver coin of Skandagupta of the 'Madhyadesa type' bearing the date G.E. 141 (=A.D. 460) and a copper coin bearing the legend *Sri Maharaja Harigupta* on the obverse and the design of vase within railing on the reverse, were discovered.

MAHARASHTRA

6. MUGHAL COINS, TALUK SHRIGONDA, DISTRICT AHMADNAGAR.—Three hundred and ninety-two silver coins of Aurangzeb and Muhammad Shah were discovered at Adhalgaon.

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[1] Information from : 2 and 21, Western Circle of the Survey; 3, the Curator, Bhuri Singh Museum, Chamba; 6-15, the Director of Archives and Archaeology, Maharashtra State; 16-19, the Director of Archaeology, Mysore State; 10, 22-25, the Director of Archaeology and Museums, Rajasthan State; 1, Dr. P. L. Gupta, Patna Museum; and 4-5, 26-30, Prof. K. D. Bajpai, University of Saugar.

7. MUGHAL COINS, TALUK CHANDUR, DISTRICT AMRAVATI.—Copper *fulus* of the Elichpur Mint were found at village Nandurabad.

8. LATER MUGHAL COINS, TALUK ASHTA, DISTRICT BHIR.—Twelve silver coins of Alamgir II and Shah Alam II were discovered at Ashta.

9. MUGHAL AND BRITISH COINS, TALUK MANILEGAON, DISTRICT BHIR.—One hundred and twenty-four silver coins of the Mughal emperors, Shah Jahan and Aurangzeb and thirty silver coins of Queen Victoria, Edward VII and George V, were discovered at Warola and Simripargaon respectively.

10. LATER MUGHAL COINS, TALUK CHANDRAPUR, DISTRICT CHANDRAPUR.—Ninety-three silver coins of Ahmad Shah and Bahadur Shah were found at Vitthalwadi.

11. MISCELLANEOUS SILVER COINS AND BRACELETS, TALUK GADHCHIROLI, DISTRICT CHANDRAPUR.—Thirty-five silver coins of the Tughluq ruler, Alau'd-Din Muhammad Shah II and the Bahmani ruler, Muhammad Shah II and two silver bracelets were discovered from the village Bedgaon.

12. BRITISH COINS, TALUK RAMTEK, DISTRICT NAGPUR.—A hoard comprising one hundred and twenty-one silver rupees of William IV and Queen Victoria was discovered from Ramtek.

13. MUGHAL GOLD COINS, TALUK SAONER, DISTRICT NAGPUR.—Six Mughal gold coins were acquired from a treasure-trove find by the Sub-Divisional Officer, Saoner.

14. ROMAN GOLD COINS, TALUK UMRED, DISTRICT NAGPUR.—Eleven gold coins belonging to the Roman emperors Augustus Caius Julius Octavianus (27 B.C.-A.D. 14) and Tiberius-Tiberius Claudius Nero (A.D. 14-A.D. 37) were discovered at village Adam.

15. MUGHAL COINS, TALUK DARWHA, DISTRICT YEOTMAL.—Two hundred and sixty-two silver coins of Aurangzeb were acquired from the village Dhanaj as treasure-trove finds.

MYSORE

16. MISCELLANEOUS COINS, TALUK ATHANI, DISTRICT BELGAUM.—A hoard of fifty-nine coins was discovered at Kakatanour. Of these, fifty-one are of silver and thick type bearing Persian legend on both sides and the remaining eight are of copper and perhaps belong to the Bijapur Sultans.

17. VIJAYANAGARA COINS, TALUK HIREKERUR, DISTRICT DHARWAR.—A hoard of thirty-four gold coins, of which twenty are *ha\[-varahas* and fourteen *quarter-varahas*, belonging to the Vijayanagara king Krishnadevaraya, were discovered in the old Nidnegal village.

18. VIJAYANAGARA COINS, TALUK SHIGGAON, DISTRICT DHARWAR.—Twenty-six gold *half-varahas* of the Vijayanagara king Krishnadevaraya were discovered at village Gundur. All are of the Balakrishna type with Nagari legend on the reverse reading *Sri Pratapa Krishnaraya.*

19. VIJAYANAGARA COINS, MANGALORE HARBOUR PROJECT AREA, MANGALORE, DISTRICT SOUTH KANARA.—A hoard of two hundred and fifty gold coins of the Vijayanagara period was discovered in the Mangalore Project Area. These coins, which are not well-struck, have Lakshminarayana and Umamahesvara groups and the seated Balakrishna type, besides a number of indistinct types.

RAJASTHAN

20. MUGHAL COINS, DISTRICT ALWAR.—Nineteen gold coins of the Mughal period were discovered from a jungle in Tahsil Thana Gazi.

21. LATER MUGHAL COINS, DISTRICT BARMER.—A hoard of one hundred silver coins from Paraeu, lying in the custody of the District Collector, was examined and found to be of the time of the later Mughal emperors, Shah Alam II and Muhammad Akbar II. These coins were perhaps issued in the name of the Mughal emperors by the Jodhpur rulers, as they bear the mint name Daru'l Mansur (Jodhpur) (see p. 77).

22. SILVER COIN, DISTRICT BHILWARA.—A silver coin of some Arab governor of Sind was found at village Bagore.

23. COINS OF THE DELHI SULTANS, DISTRICT CHITOR.—One hundred and six billon coins of the fourteenth century Delhi Sultans from village Chenchi in Tahsil Begun were acquired as treasure-trove.

24. MISCELLANEOUS COINS, DISTRICT JAIPUR.—One silver *Adi-varaha* coin and two copper coins including one of Alau'd-Din Khalji from village Daya Rampura, near Bassi and one Kushan coin from Khoh were discovered.

25. MISCELLANEOUS COINS, DISTRICT SIROHI.—One silver and eight hundred and fourteen copper coins from village Girwar in Tahsil Revadar and one hundred and ten billon and twenty-two copper coins from village Kalindri were acquired.

UTTAR PRADESH

26. COPPER COINS, AHICHCHHATRA.—A round coin of Achyuta of Panchala with his portrait and traces of his name *Achu* on the obverse and eight-spoked wheel on the reverse and another rare one with two counter-struck Ujjain symbols and a standing figure of a deity were discovered.

27. COPPER COIN OF THE CITY OF AYODHYA, AYODHYA.—It bears the legend *Ajudhe* in Brahmi characters of the first century B.C.

28. BRONZE SEAL, KAUSAMBI.—An oval seal, in the collection of Shri R. C. Vyas of Allahabad, bearing the conch symbol and the legend *Yakshah* in Gupta Brahmi characters, was identified.

29. CLAY SEALINGS, KAUSAMBI.—Two sealings in the collection of Shri J. C. Tandon of Allahabad were identified. One of these bears the legend *Rajno Parvatasya*, who was ruling over Kausambi in the third century A.D. ; the other bears the name of the Magha ruler of Kausambi, Sivamagha, along with his title *Maharaja*.

30. COINS OF THE RULERS OF KAUSAMBI, KAUSAMBI.—Three coins of Gomitra, a new ruler of Kausambi, with his name and the figure of a bull on the obverse and tree-in-railing and a cross symbol on the reverse were obtained from Kausambi. Another copper coin, in the collection of Shri R. C. Vyas, bearing the legend *Vasudatasa* in first century A.D. characters, was identified.

IV. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. NEOLITHIC SITE, KONDAPUR SITE MUSEUM, DISTRICT MEDAK.—During the course of exploration in the hill-slopes and surrounding fields, about one kilometre south of the Site Museum and south-west of the Satavahana city at Kondapur, Shri I. K. Sarma of the Excavations Branch and Shri B. Ramakrishna Das, Artist, Kondapur Museum, of the Survey, discovered burnished grey and coarse red wares, besides ground stone axes among which was a hoe from the granitic outcrops.

2. EARLY STONE AGE SITE, UDAYAGIRI, DISTRICT NELLORE.—Shri H. Sarkar of the Temple Survey Project (Southern Region) of the Survey, discovered an Early Stone Age site at Udayagiri, about 106 km. to the north-west of Nellore.

3. EARLY STONE AGE TOOLS, BHAIRAVAKONDA, DISTRICT ONGOLE.—Shri H. Sarkar of the Temple Survey Project (Southern Region) of the Survey, picked up Early Stone Age tools at Bhairavakonda, famous for a group of early caves.

BIHAR

4. STONE PILLAR, KESARIA, DISTRICT CHAMPARAN.—Shri B. N. Prasad of the Mid-eastern Circle of the Survey discovered a black stone pillar.

5. EARLY HISTORICAL REMAINS, CHAMUNDAGARH, DISTRICT MUZAFFARPUR.—Shri B. N. Prasad of the Mid-eastern Circle of the Survey discovered remains of a fort-wall and moat, besides sherds of the N. B. P. grey and red wares.

6. MAURYAN REMAINS, KANKARBAGH, PATNA.—Remains of a few wooden pillars following a regular alignment, a stone pillar with ornamental designs, Mauryan terracottas and sherds of the N.B.P. Ware were unearthed by the Public Health Engineering Department of the Government of Bihar while digging a drain. It is likely that the wooden pillars formed part of the Mauryan palisade of ancient Pataliputra (see above, p. 6).

7. N.B.P. WARE, JURKAN, DISTRICT SARAN.—Shri B. N. Prasad of the Mid-eastern Circle of the Survey, found sherds of the N.B.P. Ware at village Jurkan.

GUJARAT

8. LATE STONE AGE SITES, DISTRICT AHMADABAD.—The discovery of Late Stone Age sites at Bhavada, Bhuwal, Govindara and Udrel in Taluk Daskoi, reported by Dr. V. M. Trivedi of Udrel was confirmed on re-examination by the Survey. These sites have yielded lunates, often with worked back, symmetrical and asymmetrical triangles, points, parallel-sided small blades and scrapers in quartz, chert and chalcedony.

9. LATE STONE AGE TOOLS, DISTRICT BHARUCH.—Shri N. M. Ganam of the Western Circle of the Survey picked up microliths on the bank of a rivulet near Parodi.

10. MEDIEVAL SCULPTURES, SIDHPUR, DISTRICT MAHESANA.—Shri S. Ananda Sastry of the Western Circle of the Survey recovered twenty-two loose sculptures from a deserted well on the outskirts of the town. These sculptures perhaps belonged to a Jaina temple of the fourteenth-fifteenth centuries A.D.

11. EARLY MEDIEVAL TEMPLE, DISTRICT SABARKANTHA.—A temple, datable to about the ninth-tenth centuries A.D. having *phansana* type *sikhara* (pl. LXXIIA) was discovered at Agiya village near Khedabrahma.

12. MEDIEVAL SITE, KOTHAMBRI, DISTRICT VALSAD.—Shri K. P. Gupta of the Western Circle of the Survey, discovered a medieval site at Kothambri in Taluk Navsari.

13. MEDIEVAL SCULPTURES, VERAWAL, DISTRICT VALSAD.—A frieze with a seated Lakulisa figure was discovered by Shri N. M. Ganam of the Western Circle of the Survey from the cemetery at Verawal, near Navsari.

KERALA

14. RING-WELLS, DISTRICT ALLEPPEY.—Ring-wells, similar to the ones discovered in the Cranganore area, were discovered by the Director of Archaeology, Kerala State, at Pallathara-Pallipuram in Taluk Shertallai. One of the ring-wells went down to a depth of 1.6 m. and resembles those connected with the megalithic remains in the mode of construction.

15. ROCK-CUT CAVE, DISTRICT CALICUT.—The Director of Archaeology, Kerala State discovered, at Purmony in Taluk Badagara, a circular rock-cut cave with a central pillar. It measured 2.7 m. in length on the north-south and 2*2 m. in breadth on the east-west and was about 1 m. high. Dishes, bowls and four-legged jars in Black-and-red ware were collected from the cave.

16. ROCK-CUT CAVE, DISTRICT CANNANORE.—The Director of Archaeology, Kerala State, reported the discovery of a rock-cut cave of an unusual type in village Muttatody in Taluk Kasargod along with a large number of bowls, dishes, plates and iron objects.

17. ROCK-CUT CAVE, DISTRICT MALAPPURAM.—A double-chambered rock-cut cave containing bowls, dishes and plates in Black-and-red ware were discovered by the Director of Archaeology, Kerala State, at Ponmala in Taluk Ernad.

18. VISHNU SCULPTURE, DISTRICT MALAPPURAM.—A colossal sculpture of Vishnu with the left leg folded and the right one hanging, was discovered by the Director of Archaeology, Kerala State, from Indianur-Kottakal. It is datable to the twelfth-thirteenth centuries.

MADHYA PRADESH

19. MEDIEVAL SCULPTURES, DISTRICT BALAGHAT.—Shri C. B. Trivedi of the Central Circle of the Survey, discovered a number of sculptures.

20. KALACHURI SCULPTURES, MALLAR, DISTRICT BILASPUR.—A stone sculpture showing a woman standing under a tree and holding a child and another showing Vinadhara Siva with Nandi were found by Prof. K. D. Bajpai of the University of Saugar. They belong respectively to the early Kalachuri period *(circa* eighth century) and eleventh century A.D.

21. EARLY AND MIDDLE STONE AGE TOOLS AND LATE MEDIEVAL REMAINS, DISTRICT BUNDI.—Shri G. B. Trivedi of the Central Circle of the Survey discovered tools of the Early and Middle Stone Ages from the loose gravels on the river Mej at Khatgarh in Tahsil Keshoraipatan. In the same village he also discovered a medieval temple. Remains of palaces, temples, cenotaphs and inscribed *Sati*-pillars datable between the fifteenth and sixteenth centuries were discovered at Gendoli in the same Tahsil.

22. STONE AGE TOOLS, CHANDERI, DISTRICT GUNA.—Shri C. B. Trivedi of the Central Circle of the Survey discovered Early (pls. LXXII B and LXXIII A) and Middle Stone Age (pl. LXXIII B) tools made of quartzite from different sites at Chanderi.

23. MEDIEVAL REMAINS, THOBAN, DISTRICT GUNA.—Shri C. B. Trivedi of the Central Circle of the Survey noticed groups of late Pratihara temples, one of which had an inscrip tion bearing the date, v.s. 1077 (A.D. 1134), besides Brahmanical and Jaina sculptures (pl. LXXIV A) of the tenth-eleventh centuries at Thoban.

24. STONE SCULPTURES, JABALPUR.—A tenth century stone sculpture of a goddess holding *kamandalu* in the left hand and the right hand held in *abhaya-mudra* was found by Prof. K. D. Bajpai.

25. MEDIEVAL SCULPTURES, PANAGAR, DISTRICT NARSINGHPUR.—Shri C. B. Trivedi of the Central Circle of the Survey noticed a number of sculptures of the Kalachuri style at Panagar.

26. EARLY HISTORICAL SITE, DISTRICT SEHORE.—Shri C. B. Trivedi of the Central Circle of the Survey discovered black-and-red, black-slipped, N.B.P. and other associated wares at Nadner on the banks of the Narmada. It is interesting to recall that the name Nadinagara or Nandinagara is frequently mentioned in the Sanchi votive inscriptions.

27. STONE SCULPTURE, TRIPURI.—Prof. K. D. Bajpai discovered a stone sculpture showing seated Siva and Parvati of the early Kalachuri style, datable to *circa* ninth century.

28. HISTORICAL AND LATE HISTORICAL POTTERY, UJJAIN.—Shri V. K. Tiwari of the Central Circle of the Survey noticed black-and-red, grey and late historical wares at Makoriyaam and Sodhang.

29. PARAMARA TEMPLE REMAINS, DISTRICT UJJAIN.—Shri V. K. Tiwari of the Central Circle of the Survey noticed remains of *mandapa* of a Paramara temple inside the Mochi Masjid in the Ujjain city and at Dangwara.

30. GUPTA PILLAR-CAPITAL, VIDISHA.—Prof. K. D. Bajpai discovered a stone pillar-capital belonging to *circa* fifth century from Vidisha.

MAHARASHTRA

31. BUDDHIST ROCK-GUT CAVES, DISTRICT AMRAVATI.—Shri K. D. Kawadkar of the Department of Archives and Archaeology, Government of Maharashtra, discovered three Buddhist rock-cut caves of the early centuries of the Christian era at Salbardi on the bank of the river Mara in the Satpura ranges on the borders of District Amravati, Maharashtra, and District Betul, Madhya Pradesh.

32. IMAGE OF LAKSHMI, PARSHIVANI, DISTRICT NAGPUR.—An eleventh-twelfth century sculpture of Mahalakshmi (pl. LXXIV B) was reported by the Central Museum, Nagpur.

33. BRAHMI INSCRIPTION, TALEGAON, TALUK DINDORI, DISTRICT NASIK.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of a Brahmi stone inscription and large-sized bricks at Talegaon, ascribable to the Satavahana period *(circa* 200 B.C.-A.D. 200).

34. COPPER-PLATE, SUN TEMPLE, KASHELI, DISTRICT RATNAGIRI.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of a copper-plate grant of Silahara Gandaraditya from the Kankaditya temple at Kasheli in Taluk Rajapur. The grant, which was found along with the ring and a seal having the Garuda emblem, mentions the boundaries of the Kasheli village and the Sun temple there. The temple has an image of Surya of the Silahara period, besides wooden sculptural panels in the *garbhagriha.* The temple seems to have been re-built during the Peshwa period and again during the last one hundred years.

35. EARLY HISTORICAL AND MEDIEVAL REMAINS, TALUK DAPOLI, DISTRICT RATNA GIRI.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of Buddhist and Brahmanical caves. The ceiling of one of the caves is carved with sculptural panels depicting scenes from the *Ramayana* and the *Mahabharata.* A mono lithic temple was discovered, besides remains of Silahara fortification, near Panhalakaji.

36. STONE AGE TOOLS, TALUK MALVAN, DISTRICT RATNAGIRI.—The Director of Archives and Archaeology, Government of Maharashtra, in collaboration with the Deccan College, Pune, discovered, in the course of an exploration, tools of the Early Stone Age at Chowke, Haddi and Rajkot. At Haddi, which appears to be a factory-site, some caves were also noticed.

37. COPPER-PLATE, TALUK RAJAPUR, DISTRICT RATNAGIRI.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of a Silahara copper-plate with the seal.

38. SILAHARA PALACE REMAINS, DISTRICT RATNAGIRI.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of the plinth of a Silahara palace at Jalgaon in Taluk Dapoli, District Ratnagiri.

39. MEDIEVAL REMAINS, TALUK DAPOLI, DISTRICT RATNAGIRI.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of temples of the Maratha period having domes and minarets at village Talsud; tomb of an army

chief with inscriptions in Marathi, English and Hebrew at Dapoli; wood-carvings and a large bell in a Devi temple at Murud and a natural cave converted into a temple at Dabhol.

40. MITHUNA SCULPTURE, MIRAJ, DISTRICT SANGLI.—The Director of Archives and Archaeology, Government of Maharashtra, discovered a *mithuna* sculpture and some stone inscriptions in the fort at Miraj.

41. BRAHMANICAL SCULPTURES, DISTRICT THANA.—The Director of Archives and Archaeology, Government of Maharashtra, during the course of exploration in Taluk Bassein, reported the discovery of idols of Brahma, Varaha, Gajalakshmi, Siva-Parvati, Surya, etc., near Nalasopara and an image of Vishnu in village Umarale.

42. BILINGUAL INSCRIPTION, HIVARA, DISTRICT YAVATMAL.—The Director of Archives and Archaeology, Government of Maharashtra, reported the discovery of a bilingual inscription in Nagari and Persian characters from Hivara in Taluk Pusad.

MYSORE

43. KADAMBA INSCRIPTION, DISTRICT NORTH KANARA.—Dr. B. R. Gopal of the Department of Ancient Indian History, Culture and Archaeology, Karnatak University, Dharwar, discovered a Kadamba inscription engraved on four faces of a pillar at Gudnapur, near Banavasi. The inscription, which belongs to the Kadamba ruler Ravivarman, is in Sanskrit prose and verse written from bottom to top, unlike the famous Talagunda inscrip tion. Besides giving the genealogy of the family up to Ravivarman, it records the name of Mayurasarman, the founder of the dynasty and Bandhushena and Virasarman, the father and grandfather respectively of Mayurasarman. An important point brought out in the inscription is the erection of a temple for Manmatha by Ravivarman and the installation of the images of Rati and Manmatha therein and the endowment of villages and land for worship in the temple. The inscription refers to the place Gudnapur as Guddatataka.

44. MEGALITHIC SITE, DISTRICT NORTH KANARA.—Dr. A. Sundara of the Kannada Research Institute, Dharwar, noticed a megalithic site at Kantaraj.

45. KANNADA INSCRIPTIONS, DISTRICT OSMANABAD.—Dr. M. S. Nagaraja Rao of the Kannada Research Institute, Dharwar, copied a number of Kannada inscriptions belonging to the Chalukyas, Kalachuris and Yadavas.

46. MEGALITHIC SITES, DISTRICT RAICHUR.—Dr. A. Sundara of the Kannada Research Institute, Dharwar, located megalithic sites at Tippanahal and Jadaval in Taluk Yellburga.

47. NEOLITHIC SITES, DISTRICT RAICHUR.—Dr. A Sundara of the Kannada Research Institute, Dharwar, located grey ware and blade-tools from the neolithic sites at Arnal, Gonal, Hebbal, Herur, Hirejantakal, Hosakera, Kuntoji, Singanahal and Tippanahal in Taluk Gangavati.

48. INSCRIPTIONS, DISTRICT RAICHUR.—Dr. A. Sundara of the Kannada Research Institute, Dharwar, copied about twenty-five Rashtrakuta, Chalukya, Yadava and Vijayanagara inscriptions in Taluk Gangavati.

49. VIJAYANAGARA AND CHALUKYA TEMPLES, DISTRICT RAICHUR.—Dr. A. Sundara of the Kannada Research Institute, Dharwar, recorded remains of temples of the Vijaya nagara and Chalukya periods.

ORISSA

50. PRACHI VALLEY, DISTRICT PURI.—The Director of Cultural Affairs, Orissa, reported the discovery of a large number of pots mainly of red ware near a ninth-tenth century temple in the Prachi Valley. Particularly interesting is a *kamandalu-shaped* red ware vase (pl. LXXIV D) with a horizontally splayed out rim on which is attached a relief figure depicting Sarasvati.

51. LAKSHMI-NARAYANA IMAGE, CHAURASHI, PRACHI VALLEY, DISTRICT PURI.—The Director of Cultural Affiairs, Orissa, reported the discovery of an image of Lakshmi-Narayana (pi. LXXIV C) carved in chlorite stone and datable to *circa* twelfth century.

RAJASTHAN

52. MEDIEVAL TEMPLE, CHITRI, DISTRICT DUNGARPUR.—Shri K. P. Gupta of the Western Circle of the Survey, discovered a Siva temple at Chitri. According to a thirteenth-century inscription therein, the Siva temple was reconstructed along with the contemporary Paramara temples at Arthuna in the same District,

53. SCULPTURES, SUN TEMPLE, OSIAN, DISTRICT JODHPUR.—The Director of Archa eology and Museums, Rajasthan, reported the discovery of sculptures and an inscribed memorial from a step-well near the Sun temple at Osian.

54. EARLY MEDIEVAL TEMPLE, NEEMAJ, DISTRICT PALI.—The Director of Archaeo logy and Museums, Rajasthan, reported the discovery of an interesting Matrika temple at Neemaj, about 120 km. from Jodhpur. The loose sculptures belonging to this tenth century temple, locally known as Makar Mandi Mata temple, have been collected and preserved at the site itself.

UTTAR PRADESH

55. MEDIEVAL SCULPTURES, DISTRICT FATEHPUR.—Shri L. M. Wahal of the Northern Circle of the Survey, noticed medieval sculptures of Uma-Mahesvara, Ganesa, Sapta-matrikas, Katyayani and the Navagrahas at Binda Bijuri.

56. N.B.P. WARE, DISTRICT JAUNPUR.—Shri M. L. Das of the Mid-eastern Circle of the Survey, collected fragments of the N.B.P. Ware from the villages Parraon and Koiran in Tehsil Mariahu.

57. PAINTED GREY AND N.B.P. WARES, DISTRICT KANPUR.—Shri L. M. Wahal of the Northern Circle of the Survey, discovered Painted Grey and N.B.P. Wares at Ozham .and red ware at Lai Bhagat. He also reported medieval sculptures at Chhatereva and Sambhuwa.

58. N.B.P. WARE AND MEDIEVAL SCULPTURES, DISTRICT LUCKNOW.—Dr. S. B. Singh of the Northern Circle of the Survey, noticed the N.B.P. Ware on a mound in Fatehpur village. He also discovered Brahmanical sculptures of the medieval period at Jabrailia, Nimtikar and Ratnapur.

59. PAINTED GREY, N.B.P. AND OTHER WARES, DISTRICT MAINPURI.—Shri L. M. Wahal of the Northern Circle of the Survey, discovered the Painted Grey, N.B.P. and the black-and-red wares at Bhanwat. Besides, he also noticed medieval sculptures at Ujjhani.

60. BRAHMANICAL AND JAINA IMAGES, DISTRICT UNNAO.—Shri L. M. Wahal of the Northern Circle of the Survey, noticed several Brahmanical and Jaina images at Kusumbi.

WEST BENGAL

61. CHALCOLITHIC SITE, BHARATPUR, DISTRICT BURDWAN.—On receiving information from the Burdwan Sanskriti Parishad, Shri S. K. Mukherjee of the Eastern Circle of the Survey, examined and identified an extensive mound at Bharatpur near Panagarh Railway Station. The mound, which has a massive brick *stupa* belonging to the medieval times yielded evidence of continuous occupation from the chalcolithic to the medieval times.

V. RADIOCARBON DATES[1]

The following radiocarbon dates[2] were measured by the Tata Institute of Fundamental Research, Bombay during August 1970-August, 1971. The sites[3] have been arranged State-wise. The dates are based on the radiocarbon half-life value of 5730 years. For B.C./A.D. scale, 1950 has been taken as the base year. All the wood and charcoal samples were given NaOH pretreatment.

ASSAM

1. AMBARI, DISTRICT KAMRUP
   TF-1019. Historical levels. 920 ± 105 (A.D. 1030)
   Charcoal; Trench AGXI—2161; layer 3; depth 1-2 m.

BIHAR

2. CHIRAND, DISTRICT SARAN

   (i) TF-1029. Black and Red Ware levels. 3000 ± 90 (1050 B.C.)
   Charcoal; Trench CRD-XI; layer 10; depth 6-5 m.
   (ii) TF-1030. Neolithic Culture. 3530 ± 100 (1580 B.C.)
   Charcoal; Trench CRD-XI; layer 11; depth 6-9 m.
   (iii) TF-1031. Neolithic Culture. 3625 ± 140 (1675 B.C.)
   Charcoal; Trench CRD-XI; layer 12; depth 7-2 m.
   (iv) TF-1032. Neolithic Culture. 3705 ± 155 (1755 B.C.)
   Charcoal; Trench CRD-XI; layer 13; depth 7-5 m.
   (v) TF-1033. Neolithic Culture. 3490 ± 110 (1540 B.C.)
   Charcoal; Trench CRD-XI (Extn.); layer 14; depth 8-5 m.
   (vi) TF-1034. Neolithic Culture. 3520 ± 115 (1570 B.C.)
   Charcoal; Trench CRD-XI (Extn.); layer 15; depth 9 m.
   (vii) TF-1035. Neolithic Culture. 3220 ± 105 (1270 B.C.)
   Charcoal; Trench CRD-XI (Extn.); layer 16; depth 9-2 m.
   (viii) TF-1036. Neolithic Culture (?). 2555 ± 125 (605 B.C.)
   Charcoal; Trench CRD-XI (Extn.); layer 17; depth 10-1 m.
   (ix) TF-1125. Neolithic Culture. 3465 ± 155 (1515 B.C.)
   Charcoal; Trench CRD-XI (Extn.); layer 14; depth 7-5 m.

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[1] Contributed by D. P. Agrawal and Sheela Kusumgar.

[2] Further details of the samples can be had from the submitting organizations.

[3] Samples submitted : 1, by the Department of Anthropology, Gauhati University, Gauhati; 2, by the Department of Archaeology and Museums, Government of Bihar, Patna-15, Bihar; 3, 4, 6 and 9, by the Tata Institute of Fundamental Research, Bombay; 5, by the Cambridge University, Cambridge, United Kingdom ; 7, by Geological Survey of India, Chandigarh ; 8, by the National Institute of Oceanography, Goa; 10, by the Deccan College Post-Graduate and Research Institute, Pune-6 ; 11, by the Department of Archaeology, Government of Uttar Pradesh, Banarsi Bagh, Lucknow.

(x) TF-1126. Neolithic Culture (?). 2355 ± 125 (405 B.C.)
Charcoal; Trench CRD-XI (Extn.); layer 15; depth 8-1 m.
(xi) TF-1127. Neolithic Culture. 3325 ± 100 (1375 B.C.)
Charcoal; Trench CRD-XI (Extn.); layer 17; depth 10-3 m.

GOA

3. VAGATOR, DISTRICT GO A

(i) TF-1081. Littoral deposits. 845 ± 90 (A.D. 1105)
Shells from 1-05 m. below surface.
(ii) TF-1082. Littoral deposits. 980 ± 90 (A.D. 970)
Shells from surface.

GUJARAT

4. PATAN, DISTRICT MAHESANA

TF-1047. Sediments. 20215 ± 325 (18265 B.C.)

Shells from a 0-5 m. thick bed, the stratigraphy of which is not clear.

5. SURAJBARI, DISTRICT MALI A

(i) TF-928. Quaternary deposits. 1380 ± 100 (A.D. 570)
Wood; depth 6-8 m.
(ii) TF-1024. Quaternary deposits. 4125 ± 105 (2175 B.C.)
Marine shells.

6. MALVAN, DISTRICT SURAT

TF-1084..Chalcolithic Culture. 2750 ± 95 (800 B.C.)
Charcoal: Trench MVN-IC; layer 3A; depth 1 m.

HIMACHAL PRADESH

7. SUNDERNAGAR, DISTRICT MANDI
TF-1021, Holocene deposits. 2690 ± 100 (740 B.C.)
Wood fragments; depth 4 m.

KERALA

8. VEMBANAD LAKE, DISTRICT KOTTAYAM

(i) TF-1091. Sediment shells. 4060 ± 145 (2110 B.C.)
Shells; depth 1-8 m. below the bottom of the lake.
(ii) TF-1090. Sediment shells. 3735 ± 100 (1785 B.C.)
Shells; depth 3-3 m. below the bottom of the lake.

MAHARASHTRA

9. INAMGAON, DISTRICT PUNE

(i) TF-995. Chalcolithic Culture (?). 1825 ± 125 (A.D. 125)
Charcoal from INM-I; Trench A2; layer 3.
(ii) TF-996. Chalcolithic Culture. 3020 ± 185 (1070 B.C.)
Charcoal from INM-I; Trench A2; layer 4; depth 1-5 m. (iii)
TF-997. Chalcolithic Culture (?). ' 1575 ± 105 (A.D. 385)
Charcoal from INM-I; Trench D2; layer 7; depth 2-8 m.
(iv) TF-1000. Chalcolithic Culture 3325 ± 85 (1375 B.C.)
Charcoal from INM-I; Trench D2; layer 15.
(v) TF-1001. Chalcolithic Culture. 3515 ± 95 (1565 B.C.)
Charcoal from INM-I; Trench AI-A2; layer 16.
(vi) TF-1086. Chalcolithic Culture. 3485 ± 155 (1535 B.C.)
Charcoal from INM-I; Trench Dl; layer 8.

10. BHATTI MIRY A, DISTRICT RATNAGIRI

(i) TF-1079. Littoral deposits. 2305 ± 95 (355 B.C.)
Shells; depth 1.5 m.
(ii) TF-1080. Littoral deposits. 2800 ±110 (850 B.C.)
Shells; depth 1-6 m.

UTTAR PRADESH

11. SARAI NAHAR RAI, DISTRICT PRATAPGARH

TF-1104. Microlithic Culture. 10345 ± 110 (8395 B.C.)
Human bones; Trench C-5; qd. 3; layer 1; depth 5 cm.

VI. MUSEUMS

1. GOVERNMENT MUSEUM, AGARTALA, TRIPURA.—The Museum, which was opened to the public in 1970, houses various exhibits viz., stone and metal images, terracottas, coins, copper-plates, stone inscriptions, wood carvings, old manuscripts, administrative papers of ex-rulers, tribal objects, stuffed birds, mammals, etc. The exhibits are provided with labels in English and Bengali.

The Archaeological Section consists of two galleries. The Natural History Section, which is nearing completion, will house examples of the tribal culture of Tripura. A small laboratory and a library are attached to the Museum.

2. ARCHAEOLOGICAL MUSEUM, AHAR, DISTRICT UDAIPUR.—The Museum was re organized on modern lines. Photographic record of the paintings in the Museum was completed. A number of terracottas and other finds were added to the Museum collection.

3. RAJPUTANA MUSEUM, AJMER.—Pedestals of sculptures were replaced. Besides, film shows, exhibitions and lectures on museum material for educational institutions were also organized. The Museum acquired an image of Siva-Parvati seated on a bull and another of Ganesha, found from Sawser near Kekri in District Ajmer.

4. MUNICIPAL MUSEUM, ALLAHABAD.—Notable acquisitions to the Museum during the year were, twenty-five terracottas, seals and sealings and seven animal-shaped beads, all from Kausambi. Of the important terracottas, mention may be made of: (i) a round plaque showing a royal person in a chariot drawn by deers; (ii) a winged male bust caress ing a peacock and an amazon; and (iii) fore-part of a toy-cart in the shape of a lion. Interesting is a sealing of the Satavahana king Gautamiputra Sri Vijaya from Kausambi found for the first time and another of a king named Parvata.

Two catalogues, one on stone sculptures and the other on terracottas, are under publication. Two special halls are being added to the Museum to house terracottas and modern Indian paintings.

5. GOVERNMENT MUSEUM, ALWAR.—Preliminaries for re-organizing the Museum and cataloguing the antiquities were completed. Photographic documentation of the paintings was also undertaken. For proper security, two iron gates were provided in the central hall.

6. ARCHAEOLOGICAL MUSEUM, AMARAVATI, DISTRICT GUNTUR.—Re-organization of the Museum and preparation of the model of the *stupa* are nearing completion. The Museum will be thrown open to the public soon.

7. ARCHAEOLOGICAL MUSEUM, AMBER.—Five sculptures representing Varaha, Siva-Parvati, Mahishasuramardini, a *dikpala* and a *chamara-dharini* were acquired for the Museum.

8. SHRI BHAVANI MUSEUM AND LIBRARY, AUNDH.—The Library was shifted from Yamai temple to Trimbak Kala Bhavan. Arrangements were made for the display of exhibits in the Children Section.

Information-folders and a catalogue of manuscripts are under preparation. The All India Museum Week was celebrated by holding a special exhibition.

9. GOVERNMENT MUSEUM, BANGALORE.—Acquisitions to the Museum consisted of two stone sculptures from Mathura of the Gupta period and ten paintings of the Mysore, Tanjore, Garhwal and Bikaner Schools, besides portraits of the rulers of Mysore, miniatures from Maharashtra and a painting on ivory.

10. STATE MUSEUM, BHARATPUR.—The Painting and the Sculpture Galleries of the Museum were re-organized and adequate lights provided for better visual effects. As a security measure the old wooden gate was replaced by a collapsible iron gate. Nineteen sculptures from different sites in the Bharatpur District were acquired; of these, a portable plaque depicting Karttikeya of the second century A.D. from Aghapur and Chandra of the Pratihara period from Pengore, are noteworthy.

11. ORISSA STATE MUSEUM, BHUBANESWAR.—The Museum acquired stone sculptures including a miniature image of Surya, Siva and a Tirthankara, terracotta figures of goddesses and pottery from Districts Balasore and Puri; neoliths from Kuchai, Kuliana and Baidyapur area in District Mayurbhanj and specimens of handicrafts, stuffed animals, swords, musical instruments, palm-leaf manuscripts, coins, etc., for enriching the various galleries of the Museum.

The Prehistory and Art and Craft Galleries were declared open to the public. Specimens in the Natural History and Anthropology Sections were re-arranged.

The Library of the Museum was named after the celebrated astrologer, the Late Mahamahopadhyaya Samanta Chandra Sekhar.

Preparation of catalogues of musical instruments and palm-leaf manuscripts was undertaken. Sixty-six rare and important manuscripts were copied.

12. ARCHAEOLOGICAL MUSEUM, BIJAPUR.—A map of the Bijapur monuments and drawings of the Gun Bastion and the Chalukyan crest were prepared in addition to large number of labels. Twelve table show-cases were also re-modelled to suit the exhibits. Steps for electrification of the Museum have been taken. All the coins in the Museum have been chemically treated.

13. GANGA GOLDEN JUBILEE MUSEUM, BIKANER.—Two modern paintings in the typical Bikaner and Bundi styles were prepared and displayed. A musical instrument was also added to the collection.

The Photographic Gallery displaying pictures of various monuments and other objects was scientifically re-arranged.

14. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY.—Stone sculptures, bronzes and antiquities of the pre- and protohistoric periods were removed to the store rooms for renovation in the respective galleries. In the Key Gallery, new show-cases with proper lighting were introduced in place of old ones.

Six hundred and sixty-three coins, of which three hundred and thirteen are of silver and three hundred and fifty of copper, belonging to the Kushanas, Delhi Sultans and the Mughals were acquired from the Uttar Pradesh Government.

A catalogue of stone sculptures is under preparation.

Security arrangements were improved by fixing grills to the windows and doors.

15. INDIAN MUSEUM, CALCUTTA.—Two stone sculptures from Dinajpur, one representing the *Mahaparinirvana* of the Buddha (pl. LXXV A), ascribable to *circa* tenth century, and the other, showing the goddess Vasudhara (pl. LXXV B) datable to *circa* eleventh century, three inscribed clay seals in Gupta Brahmi from Sunet, Punjab, five terracotta sculptures one of which is of the *dasabhuja* Durga (pl. LXXVI A) from Midnapur, West Bengal, an eighteenth century manuscript of Kalidasa's *Kumarasambhavam* on Bengali hand-made paper with a commentary *Dhiraranjika* by Govindarama Siddhantavagisa and fifty coins, variously of gold, silver and copper, were acquired for the Museum. Among the more important coins (pl. LXXVII A and LXXVII B) were, a cup-shaped silver punch-marked coin, one Kuninda copper coin, a rare silver Audumbara coin, a silver coin of Strato I, a copper coin of Menander, a few silver coins of Nahapana re-struck by Gautamiputra Satakarni and a gold coin of Muhammad-bin-Tughluq.

A bay in the Long Gallery (pl. LXXVI B) of the Archaeological Section is being renovated for displaying Gupta sculptures from Sarnath in illuminated show-cases. The Prehistory Gallery is being extended for displaying prehistoric Indian metal objects.

A special exhibition 'Art of Bengal' was organized.

To the Museo-Bus mobile exhibition was added a diorama of the Arikamedu excavations.

Shri Samir K. Mukhopadhyay explored and located at Naritola in Madhya Pradesh a group of *sati* and hero-stones datable to the fifteenth-sixteenth centuries.

16. BHURI SINGH MUSEUM, CHAMBA.—Eight fountain-slabs were shifted to the Museum including the inscribed one mentioned in the *Antiquities of Chamba State*, vol. T pp. 232-37. Among other acquisitions, mention may be made of twenty-one paintings in the Pahari style including the sub-schools of Kulu, Mandi and Nurpur and coins of the Kushanas and Rajputs. More important is the find of a hoard of Indo-Greek silver coins in a brass jar from the village Lachori on the bank of the rivulet Sind, a tributary of the Ravi, about 24 km. to the north-west of Chamba. Unfortunately, most of the coins were washed away by the rivulet and only a small portion of the hoard comprising fifteen silver coins of kings Appllodotus, Menander and Antimachos could be recovered.

17. GOVERNMENT MUSEUM, CHITORGARH.—Three galleries for sculptures, paintings and pre- and protohistoric antiquities were added. For security reasons, shutters and gates were provided in the Museum building.

18. LOCAL ANTIQUITIES MUSEUM, CHITRADURGA.—A rare two-handed Ganesa of chloritic schist and two palm-leaf manuscripts were added to the collection.

19. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—With a view to re-organizing the Museum, extensive repairs to the Museum building were undertaken. A plan to organize a period-room for displaying the antiquities pertaining to the last Mughal ruler Bahadur Shah is under way.

A fragmentary Arabic stone inscription of 'Alau'd-Din Khalji found at Siri was added to the Museum-collection.

20. ASSAM STATE MUSEUM, GAUHATI.—Among the acquisitions to the Museum the following are noteworthy: (i) a black basalt image of Vishnu (pl. LXXVIII A) of the twelfth century from Burha-Burhi, District Nowgong; (ii) another black basalt image of Vishnu ascribable to the tenth-eleventh century from Chandmari, Gauhati; (iii) a cannon found in the Kokalabari forest and bearing an inscription in old Assamese script reading *'Sri Sri Parikshit Narayan Karitmidang Saka 1532';* and (iv) a coin of Ghyiathu'd-Din Bahadur Shah, three silver coins of Koch kings and two silver coins of Shah Alam II.

21. GOVERNMENT MUSEUM, GULBARGA.—Several stone reliefs from a Satavahana *stupa* consisting of panels of animals and female figurines, besides two figures of the Buddha, were new additions. A silver coin of Akbar was also acquired.

22. ARCHAEOLOGICAL MUSEUM, HALEBID.—Noteworthy among the sculptures acquired for the Museum are, a sixteen-foot high Gomatesvara, Garuda and two figures of Hariharesvara, the last two being in the Hoyasala style.

23. ARCHAEOLOGICAL MUSEUM, HAMPI.—About four hundred sculptures kept behind the Elephant Stables and in front of the Guards' Quarters were shifted to the stores for security reasons.

During the Seminar at Hampi arranged by the Dharwar University on the 'History and Art of Vijayanagara' a special exhibition was arranged.

24. STATE MUSEUM, HYDERABAD.—The Museum acquired four thousand, eight hundred and fifteen objects of which four thousand, six hundred and seventy-four were coins variously of gold, base gold, silver, copper, potin and brass. Other acquisitions included stone sculptures, stone inscriptions, architectural pieces, etc.

The Contemporary Art Pavilion was thrown open to the public. Precaution against fire was ensured by the addition of fire-fighting equipment.

25. GOVERNMENT CENTRAL MUSEUM, JAIPUR.—For security reasons, collapsible iron gates were provided to the reserve collection godowns.

An exhibition 'Rajasthan—An Introduction' was organized in connexion with the Eighth All India Museums Camp in the Albert Hall of the Museum.

26. ARCHAEOLOGICAL MUSEUM, JHALAWAR.—The Museum was re-organized on modern lines. Besides, photographic record of the paintings in the Museum was also made.

27. SARDAR MUSEUM, JODHPUR.—Re-organization of the Museum for better presentation was undertaken. A hoard of one hundred silver coins of the Later Mughals from Paraeu, District Barmer, was acquired by the Museum (see p. 63).

28. GANDHI CENTENARY MUSEUM, KARIMNAGAR.—The building having been completed, steps are afoot for opening the museum to the public.

29. KITTUR RANI CHANNAMMA MEMORIAL GOVERNMENT MUSEUM, KITTUR, DISTRICT BELGAUM.—Fifteen stone sculptures representing Durga, Ganesa, Vishnu and hero-stones of the medieval period, were acquired for the Museum.

30. KOLHAPUR MUSEUM, KOLHAPUR.—Arrangements were made for extending the present building.

Important acquisitions comprised stuffed animals, an oil painting and an erotic sculpture in the Chalukyan style from Miraj. In the Natural History Section, eight small stuffed animals were exhibited against their natural habitats. Display in the Arms Callery was improved by the introduction of show-cases of modern design and artificial lighting. A special exhibition of objects from the Reserve Collection was organized in the first week of January 1971 during the All India Museums Week.

31. ARCHAEOLOGICAL MUSEUM, KONARAK.—A palm-leaf manuscript dealing with the chronicle of the Konarak temple was acquired. Proper lighting on the outside and strengthening of security-arrangements of the sculpture-shed were undertaken.

32. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—Sixty-seven silver coins were acquired.

33. MUSEUM AND SARASWATI BHANDAR, KOTA.—More than two hundred specimens comprising sculptures and architectural fragments from the temple-site of Krishna Vilas were added.

Photographic record of the paintings in the Museum was completed. Besides, re-organization of the galleries for better display was also undertaken.

34. SITE MUSEUM, KRISHNAPURAM.—Stone sculptures *of nagarajs* and *nagi* were added.

35. SITE MUSEUM, KULPAK, DISTRICT NALGONDA.—Important pieces were displayed in the sculpture gallery of the Museum. Besides, repairs to the building were also carried out.

36. STATE MUSEUM, LUCKNOW.—Among the acquisitions to the Museum, noteworthy is a clay mould (pi. LXXVIII B) of the Sunga period, perhaps from Kausambi, depicting an elephant pillar near the Bodhi temple with arches. The example is a unique specimen of Sunga art and is also important since it is a very early representation of the Bodhi temple with arches. Besides, a small *linga* of black basalt bearing on the top *Sriyantra* with four busts of *ushnishin* Siva on the phallus and *the yonipatta* encircled by a snake is interesting. This *linga,* acquired from Nepal, shows distinct impact of the Pala art. Besides, a gold *mohur* of the later Mughal emperor, Jahandar Shah, issued from a new mint 'Shikakul', so far unknown, is an important acquisition.

An exhibition of the Nepalese and Tibetan antiquities comprising bronzes and *thangkas* was organized. Another exhibition for the teaching of history to school children was put up at Varanasi. Seminars on Indian textiles and Brahmanical sculptures were also organized.

37. GOVERNMENT MUSEUM, MADRAS.—Several metal images of Siva, Devi, Ganesa, Saiva saints, etc., from District Thanjavur, were added to the collection. Three plates of a copper-plate grant of the Vijayanagara rulers and a stone image of Durga from Nangallur village, District North Arcot, were also acquired as treasure-trove.

In the galleries, new bilingual and trilingual labels were provided for the exhibits. Other works consisted of cleaning and providing fresh labels to the royal emblems of south Indian dynasties; display of photographs of Buddhist remains at Nalanda and Java; renovation and display in the picture gallery of the mural 'Devotional Scene'; conservation of the 'Simhachalam masks' and the background for wood carvings.

38. GOVERNMENT MUSEUM, MANDORE.—A new gallery for displaying life-size portraits of the chief rulers of Marwar was added to the Museum. A bilingual label giving a short history of the locality was also put up.

39. SHREEMANTHI BAI MEMORIAL GOVERNMENT MUSEUM, MANGALORE.—Two sculptures and two fourteenth century Kannada inscriptions were added to the Museum-collection.

40. ARCHAEOLOGICAL MUSEUM, MATHURA.—Seventy-nine specimens comprising sculptures, terracottas, inscriptions, coins, etc., were added to the Museum-collection. Noteworthy among these are: (i) a bust of Siva of the Gupta period; (ii) fragment of an arch of the Gupta period showing Vishnu as Trivikrama (pl. LXXVIII C); (iii) terracotta human figures of the Sunga and medieval periods; (iv) an inscription on red sandstone in Kushan script; (v) a silver coin issued in commemoration of Diodotus by Agathokles and a gold coin of Samudragupta of the 'standard type'; (vi) Krishnalila paintings in Orissan style; (vii) an illustrated *Kalpasutra* manuscript dated Sam vat 1585; and (viii) a collection of beads.

The Museum Week was celebrated from 8th January 1971 and conducted tours were organized for students and visitors. Special exhibitions were organized of: (i) photographs of Mathura sculptures in museums in India and abroad; (ii) *asthi-kalasas* of Mahatma Gandhi, Jawahar Lai Nehru and Lai Bahadur Sastri; and (iii) antiquities from the excavations at Sonkh.

41. GOVERNMENT MUSEUM, MOUNT ABU.—The exhibits were cleaned and properly labelled and cataloguing of these was undertaken. Two sculptures from the Sun temple, Varman, District Sirohi, were added to the Museum-collection.

42. CENTRAL MUSEUM, NAGPUR.—The Anthropology Section was re-arranged and coloured photographic panels of each show-case were fixed in the background of the case.

Five stuffed mammals and sixteen birds were added to the Natural History Gallery.

In the Archaeology Section, suitable background for each exhibit was provided. Besides, large-sized photographs of streets and decorated pottery from Mohenjo-daro and Harappa were exhibited against the background of the show-cases in the Prehistory Section.

Documentation work in the Bird Gallery, Sculptures and Miniatures and Modern Paintings Galleries was completed. Special exhibition folders in Marathi and English were printed for free distribution during the 'All India Museum Week'.

43. NATIONAL MUSEUM, NEW DELHI.—Several important objects were added to the collection of the Museum. Noteworthy among them are: (i) twenty stone sculptures includ ing a Ganapati (pl. LXXIX A) of the Pratihara period and a *chaturmukha linga* (pl. LXXIX B) of the Gupta period; (ii) two stucco heads from Hadda, Afghanistan; (iii) twenty-seven

terracottas; (iv) thirty-nine bronzes; (v) fifteen seals and sealings; and (vi) two wooden pillars forming part of the Mauryan palisade from Kankarbagh, Patna (see p. 6). Besides, four Amaravati sculptures were received on permanent loan from the British Museum, London.

Fourteen gold *mohurs* and thirty-eight silver and copper coins of the Mughals, five Jaipur gold *mohurs* of the nineteenth century, two Kushana copper coins and twenty copper and silver coins of the Indo-Greek, Rajput and early Delhi Sultanate rulers were added to the coin-cabinet of the Museum.

Besides, sixteen stone inscriptions in Persian and Arabic of the thirteenth to eighteenth centuries were purchased by the Museum.

Two exhibitions of the recent acquisitions and selected sculptures received on loan, gift or exchange were organized.

The 'Early Sculptures' gallery was re-arranged (pl. LXXX) displaying important recently-acquired specimens.

44. RAJA KELKAR MUSEUM, PUNE.—This Museum, housing bronze and copper lamps and varieties of exhibits including musical instruments, was properly maintained.

45. RALLABANDI SUBBA RAO GOVERNMENT MUSEUM, RAJAHMUNDRY.—Renovation and repair works for housing the exhibits and the Library were undertaken. Besides, show cases were acquired and a garden is being laid-out. A number of stone sculptures and inscriptions were acquired.

46. ARCHAEOLOGICAL MUSEUM, SANCHI.—Twenty-eight stone sculptures were acquired for the Museum. The galleries were painted and fresh labels provided.

47. CHHATRAPATI SHIVAJI MAHARAJ MUSEUM, SATARA.—To this Period Museum of the Maratha times, were added several objects through purchase and gift. These included textiles, glass, *hundis,* wooden pillars and arches of an old *wada* at Ajinkyatara fort, swords, bricks with Persian inscriptions, wood carvings, colour transparency of Sambhaji's portrait, musical instruments, manuscripts, horsebit, silver and copper coins of Shivaji, etc.

48. GOVERNMENT MUSEUM, SHIMOGA.—Two *madanikas,* a pillar and a palm-leaf manuscript were added to the museum-collection, besides some old arms and ammunition.

49. TIPU SULTAN MUSEUM, SRIRANGAPATNAM.—The damaged model of the fort at Srirangapatnam was repaired and displayed. Plaster-casts of gold coins of Haider Ali and Tipu Sultan were prepared and displayed. Besides, two hundred copper coins of Tipu Sultan's time were chemically treated.

50. GOVERNMENT OF JAMMU AND KASHMIR MUSEUM, SRINAGAR.—Display in the Archaeology, Decorative Art and Natural History Sections of the Museum have been improved by providing fresh photo-labels.

The Children's Corner and the Dogra Art Gallery were provided with epidiascopes. Colour slides of important exhibits were prepared.

51. TER MUSEUM, TER, DISTRICT OSMANABAD.—Through the munificent donation of the collection by Shri Ramalingappa Lamture and the Collector of Ter, more than twenty-three thousand antiquities have been acquired for the Museum. Pending the

construction of a building, the Museum is presently housed in a rented building of the former donor.

52. ARCHAEOLOGICAL MUSEUM, TRICHUR.—The Museum was re-arranged into several galleries. Acquisitions included a sculpture, brass animal figurines and antiquities from rock-cut caves.

53. PRATAP MUSEUM, UDAIPUR.—A wooden *kavad* and a *Pabuji-ki-Fad* were added to the collection. Detailed labels were provided for the inscriptions. Four images of Jaina Tirthankaras and five heads of Jaina sculptures, datable to fifteenth-sixteenth centuries, were acquired from Nichali Sigari in District Udaipur.

54. MUSEUM AND PICTURE GALLERY, VADODARA.—The Museum acquired several objects, the important ones being: (i) Kushana terracottas from Mathura; (ii) stone images of Varahi (pl. LXXXI A), Parvati (pl. LXXXI B) and Vishnu (pi. LXXXII A) *of circa* seventh century from around Shamlaji; (iii) an eighth century bronze Vishnu image (pi. LXXXII B) similar in style and execution to the Akota bronzes; (iv) a bronze Parsvanatha image of the ninth century; (v) a copper-plate inscription of the time of Bhimadeva I, dated v.s. 1117; (vi) an inscribed and dated (v.s. 1457) brass *naga* image; and (vii) a Jaina wooden *mandapa* (pl. LXXXIII) of the seventeenth century from Patan.

55. ARCHAEOLOGICAL MUSEUM, VAISHALI.—Preliminaries, such as acquisition of antiquities, staff recruitment, etc., for the Museum at Vaishali are in progress.

56. BHARAT KALA BHAWAN, VARANASI.—A Mauryan ring-stone carved with the Mother Goddess and honeysuckle motifs and a sculpture showing lions seated back to back, also of the Mauryan period, and seven terracottas of the Sunga and Gupta periods were notable among the acquisitions. Besides, the Museum received from the State Museum, Lucknow, six hundred and sixty-eight coins of the Kushanas, Tughluqs, Surs, Lodis, Mughals, Nagas, Garhwal kings and the British sovereigns.

57. ARCHAEOLOGICAL MUSEUM, VELHA GOA.—A site-plan of several monuments of of Goa was prepared and displayed in one of the galleries.

The northern wing of the Sculpture Gallery was re-organized for the display of hero-stones in three separate panels of teak-ply; labels in English indicating their provenance were also provided.

VII. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Temple Survey Project, Northern Region, under Shri M. D. Khare, undertook the study of the early temples of Besnagar, Nagari, Bairat, Sravasti, Nagarjunakonda, Sanchi and Bodh-gaya, in continuation of the previous year's work on the pre-Gupta temples.

Early shrines, as represented in the sculptures of Bharhut, Mathura and Taxila, were also studied and yielded some designs, which have not been available from the actual remains of the excavated temples.

The Vishnu temple, called Marhia in the village Deori-Kalan, near Katni, District Jabalpur, datable to the later half of fifth century A.D. though discovered as early as 1883 by Cunningham, was re-studied. It has a double flat roof and a doorway decorated in the typical Gupta style and also two rows of ornamental friezes on the upper part of *the jangha.* The images of the river goddesses, Ganga and Yamuna, are conspicuous by their absence on its doorway.

Drawings pertaining to different temples mentioned above, together with a few of the Gupta temples, were prepared and detailed drawings of the Khajuraho temples were completed.

Site-wise photo albums of a few temples were prepared, while the work of cataloguing the old negatives continued. Tho photo-library was enriched by the addition of a large number of photographs of south Indian temples.

2. SOUTHERN REGION.—The Temple Survey Project, Southern Region, under Shri H. Sarkar, extended its survey of the Kerala style temples to the southern districts of Kerala and the areas adjacent to Mysore. A large number of temples situated variously in the Districts of Cannanore, Quilon and Trivandrum in Kerala, and in Districts of Kanniya-kumari and Tirunelveli in Tamil Nadu were surveyed.

The excavated temple at Perumpaludur, District Trivandrum, associated with an inscription of Karunandadakkan (A.D. 857-885), the Ay ruler, is one of the earliest among those surveyed in the southern districts. It represents the foundation of a temple of the *sandhara* type, dedicated to Vishnu and built on a circular plan, with a square *garbhagriha,* surrounded by a row of pillars. The Ay chiefs appear to have built temples not only in the Kerala style but also in the typical Dravida tradition, as is evident from the Parthasarathi temple at Parthivapuram. The latter is a fine three-storeyed *vimana*, with its nucleus dating back to the ninth century.

The area roughly comprising the Districts of Kanniyakumari in Tamil Nadu and the contiguous areas of the Districts of Trivandrum and Quilon was from a very early period the bone of contention between the two neighbouring powers, the Pandyas and the Ays. So far as temple-architecture is concerned, the region appears to be a meeting ground of two styles—Kerala and Dravida. In the temple-complex at Munjara (Munjirai or Mun-chirai) one can see a typical Dravida *vimana* (pl. LXXXIV A) meant for Siva, alongside a Kerala style temple, dedicated to Vishnu, with copper pyramidal roof. Again, the Adikesa-vaperumal temple (pl. LXXXIV B) at Tiruvattar is a typical Kerala temple, rich in sculptures of the Nayaka period. It is the most imposing temple in this area enshrining an image of Anantasayi Vishnu. Built partly of granite and partly of wood, it is an example of a two-

storeyed *vimana,* with walls originally painted. The outer circumambulatory passage, which is generally open to the sky, is here cloistered, and contains two hundred and twenty-two pillars carved beautifully with reliefs (pl. LXXXV) in the Nayaka tradition.

Several temples in the Kasaragod and Hosdurg Taluks of District Cannanore were also surveyed. Though the area is contiguous to Mysore, the temples are built in the Kerala style. Built entirely of laterite slabs, they conform to three ground plans, viz., four-sided, circular and apsidal. The ruined Sadasiva temple at Mangalapadi and the Mahalingesvara temple at Aduru (pl. LXXXVI A) belong to the apsidal plan. The earliest datable struc ture associated with an inscription of the Chera king Bhaskara Ravivarman (A.D. 962-1019) is a four-sided *sandhara* temple dedicated to Vishnu at Pullur.

One of the finest temples in the Kasaragod Taluk is the Anantapadmanabhasvami temple (pl. LXXXVI B) at Anantapuram, near Kumbla. Situated inside a tank, the two-storeyed temple, built on a square plan is set in picturesque surroundings. Both the inner and outer walls are painted (pl. LXXXVII A) with themes from both Vaishnava and Saiva legends; the paintings, showing two successive layers, include figures of Surya and Bhaga-vati. Traces of paintings can be seen even inside the *garbhagriha,* which has an octagonal *sikhara* of its own. The temple has also a number of stucco and wooden images; in fact, seated Vishnu images in stucco (pl. LXXXVII B) are to be seen in the niches in the centre of the walls of the *garbhagriha.*

During the period under review, a few alleged rock temples in the Districts of Kanni-yakumari and Tirunelveli were also examined. The one at Valliyur, in District Tirunelveli, and two rock-temples on the Marutu hill near Mandarampudur, in Agastisvaram Taluk, District Kanniyakumari, are found to be natural caverns later converted into temples. But the Vishnu cave at Kurattiyarai in Alagiyapandipuram, in Tovala Taluk, and at Sivagiri in Kalkulam Taluk, both in District Kanniyakumari, are new additions to the list of rock-cut caves in the far south.

Locally known as Auvaiyarammankoil, the rock-cut cave at Kurattiyarai in village Alagiyapandipuram is a single-celled cave dedicated to Vishnu. It is excavated into the vertical scarp at the mid-height of the Chenthipparai hill. An unfinished bas-relief of stand-ing Vishnu is carved on the back wall of the cell. Such one-celled caves in the Pandya and the Ghera countries are usually found to be dedicated to Siva, the newly discovered cave at Alagiyapandipuram in the ancient Ay territory being the only exception.

At Sivagiri, at Alwarkovil, near Eraniel in Kalkulam Taluk, District Kanniyakumari, there is a one-celled cave dedicated to Siva. It has a rock-cut *linga* in the centre, the *linga-pitha* being square on plan. Structural additions in later periods have, however, completely covered the front view of the cave excavated in a low hillock. Both the caves mentioned above may be dated to *circa* eighth-ninth century A.D.

A special study of the *balipithas,* common in the south Indian temple complexes was also undertaken. As an architectural component of the south Indian temple, it emerges as early as the time of the Pallavas, for it is found in the Shore Temple at Mahabalipuram. But its architectural beauty reached its apogee only during the time of the later Cholas, as is evident from exquisitely-ornate specimens from the Airavatesvara temple at Darasuram, near Kumbakonam, and the Naltunai-Isvaram temple at Punjai, District Thanjavur.

The term *balipitha* is a *pitha* (platform) for the offerings to the deities. The lower part of the *pitha* is a base consisting of various *adhishthana* mouldings while the top generally consists of either an *adhopadma* or an *adhopadma* and *urdhvapadma,* often with a thin fillet above to form a flat top for the offerings. The different mouldings, their proportions and the presence or absence of decorative motifs exhibit variations and offer wide scope for study.

The earliest specimen studied so far is that found in the Shore Temple at Mahabalipuram. It consists mainly of a tall and wide *kantha* which forms a broad base. The *prati* above this *kantha* has an inscription. Above the *prati*, the top courses consist of a number of *padmas* arranged in not so pleasing proportions. On the whole, it looks like a structure with abruptly receding tiers carved on a tall *upapitha.* It is this form which perhaps became the model of the profusely ornate type common in the South Arcot District in later times. It is certain that the examples at Darasuram and Punjai, the former definitely belonging to the later Chola times, are responsible for the popularity of this form.

The structural form of the *balipitha* followed another line of development culminating in the hour-glass type, predominant in the Kerala region. It had its beginning in the Pallava period itself in Vaikunthaperumal and Airavatesvara temples at Kancheepuram. Attempts have been made here to provide a constricted middle part, subsequently transformed into a tall *kantha.* The *balipitha* in the Vaikunthaperumal temple at Kancheepuram, a slightly later Pallava shrine, consists of an *upapitha* with a tall, pilastered *kantha*, a full-fledged *adhishthana* including a *kapota* with *kudus.* Above this *kapota* is a bulbous *adhopadma* crowned by a *prati.* Further, the *balipitha* of the Airavatesvara temple at Kancheepuram, also a Pallava shrine, is a less ornate example of the same variety. The Kachchhapesvara temple at Kancheepuram of the Imperial Chola period, also follows the same tradition. While the Theralandur and Sayavanam temples, both in District Thanjavur, appear to be more or less of the same type, the mouldings are so designed as to make the whole *balipitha* look tall and narrow.

The Sundaravaradaperumal temple at Uttiramerur (District Chingleput), the Tiruvilimilalai temple, the Nagesvara and Sarangapani temples at Kumbakonam, all in District Thanjavur, belong to a class by themselves, but might have been originally inspired by the examples of the Vaikunthaperumal and Airavatesvara at Kancheepuram. The *upapitha* is absent here, the *kantha* and *kumuda* of the *adhishthana* gain increasing prominence, while the top of *the pitha* gets a conical look owing to a number of graduated string-courses introduced below the *adhopadma.*

In general, the *balipithas* appear to be coeval with the main structure of the temples or temple complexes and often contain inscriptions. Hence they may prove of much help in the chronological dating of the temples. Further study of the subject is in progress.

. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. TEMPLE OF SIVA, SAKHOR, DISTRICT DAMOH.—The original platform around the temple was restored.

2. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—A wall was built to check percolation of rain water through the aperture in the roof on the north of Cave No. 2. The original floor level of Cave No. 6 was exposed. Vegetation was removed from the caves.

3. JAHAZ MAHAL, MANDU, DISTRICT DHAR.—The cracks in one of the balconies overlooking the Munj Talao were filled up with lime concrete.

4. AHUKHANA SITE, AHUKHANA, DISTRICT EAST NIMAR.—The collapsed compound-wall near the western gate was restored.

5. BIBI-SAHIB'S MOSQUE, BURHANPUR, DISTRICT EAST NIMAR.—To the right of the entrance gate the earthern platform was enclosed by wire-fencing. The sloping surface towards the road was pitched with stone blocks and the joints pointed.

6. TOMB OF SHAH-SHUJA, BURHANPUR, DISTRICT EAST NIMAR.—The pulverized concrete was replaced by fresh lime concrete.

7. THE PALACE FORT, BURHANPUR, DISTRICT EAST NIMAR.—Repairs of a general nature were taken up.

8. ROCK-CUT JAINA COLOSSI, URWAI GATE, FORT, GWALIOR.—In continuation of last year's work *(1969-70,* p. 84), a toe-wall was constructed and covered with stone pitching.

9. BRAHMANICAL ROCK-CUT TEMPLES AND BUDDHIST CAVES, DHAMNAR, DISTRICT MANDASOR.—The cavities around the temple were filled up with toned cement-concrete.

10. VISHNU-VARAHA TEMPLE AND BUDDHIST CAVES, DHAMNAR, DISTRICT MAN DASOR.—The open joints of the platform were repaired.

11. NAVA TORANA TEMPLE, KHOR, DISTRICT MANDASOR.—The platform around the temple was restored with new flagstones.

12. YASHODHARMAN'S PILLARS OF VICTORY, SONDNI, DISTRICT MANDASOR.—The open joints of the platform were filled up with cement mortar.

13. BUDDHIST MONUMENTS, SANCHI, DISTRICT RAISEN.—The monuments were freed from vegetation and a flagstone pathway from entrance gateway to Stupa No. 1 was laid.

14. MALADEVI TEMPLE, GYARASPUR, DISTRICT VIDISHA.—In continuation of last year's work *(1969-70,* p. 85), three metre high retaining walls were erected from the bed-level.

Rajasthan

15. TEMPLES NEAR CHANDRABHAGA, DISTRICT JHALAWAR.—The roofs of the temples were water-tightened.

EASTERN CIRCLE

Assam

16. ROCK-CUT VISHNU SCULPTURES, JANARDAN, GAUHATI.—Wide cracks on the rocks were grouted after removing the roots of vegetation. The foreyard was thoroughly repaired.

17. ROCK-CUT CARVINGS, KAMAKHYA HILLS, GAUHATI.—The cracks on the rock were grouted, fencing repaired and the jungle from the entire area cleared.

18. DEVIDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Deep-rooted trees were removed and the damages repaired.

19. SIBDOL, GAURISAGAR, DISTRICT SIBSAGAR.—Open joints on the walls of the *garbhagriha* were filled up by recess-pointing. The approach steps were repaired, trees uprooted from the spire and the damages made good.

20. RANGHAR PAVILION, JAYASAGAR, DISTRICT SIBSAGAR.—The missing projecting cornice on the eastern side was re-built as per original. Plaster work in the ground floor was raked and renewed reproducing the old features. Open and broken edges of the roof eaves were sealed and repaired to check growth of vegetation and leakage of rain water.

21. SIVA TEMPLE, NEGHERESTING, DISTRICT SIBSAGAR.—The old and worn-out plaster work of the *sikharas* of the three corner temples was removed and new plaster applied reproducing the original features. Besides underpinning the outer overhanging walls, the damaged arch at the main entrance was repaired and the cracks on the roof of the *mandapa* were grouted.

22. SIBDOL, SIBSAGAR, DISTRICT SIBSAGAR.—In continuation of the previous year's work *(1969-70,* p. 85), the damaged floor of the *garbhagriha* was thoroughly repaired by re-laying stone slabs over cement-concrete bedding. Debris clearance was also done.

Orissa

23. PANCHA PANDAVA TEMPLE, GANESHWARPUR, DISTRICT CUTTACK.—Debris clearance from and around the temple brought to light a flight of steps on the front side with

interesting features. The bulged portions of the ashlar masonry of the three subsidiary shrines were dismantled and re-set with lime-cement mortar using copper clamps where necessary.

24. MONASTERY NO. 1, RATNAGIRI, DISTRICT CUTTACK.—The decayed brick masonry was taken down and re-laid with old bricks in lime-cement mortar.

25. BHASKARESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The entrance to the temple was provided with a stone-built step. The cracks and crevices in the temple were grouted and pointed.

26. SIDDHESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—Open joints and depressions in the stone masonry were filled in by pointing and the roof-stones were chiselled and dressed.

27. SUN TEMPLE, KONARAK, DISTRICT PURI.—In .continuation of last year's work *(1969-70,* p. 86), the construction of baffle walls at selected heights of the *vimana,* as a preventive measure against unauthorized access to the top of the *jagamohana* was completed. The work of filling up open joints of the roof of the *jagamohana* by grouting and pointing was also brought to completion.

West Bengal

28. RASMANCHA, VISHNUPUR, DISTRICT BANKURA.—The work of re-building the fallen arches on the southern side, taken up in the previous year, was completed. The open joints of the basement and cracks on the arches of the northern side were filled up by grouting and pointing. The approach steps were re-built with bricks of special size and the damaged pathway inside the complex repaired with new bricks.

29. BRINDABAN CHANDRA TEMPLE, GUPTIPARA, DISTRICT HOOGHLY.—Besides under taking plaster work on the inner face of the sanctum of the temple, the salt-affected bricks of the pillars and arches were replaced with old bricks and the open joints on the top of the *sikhara* sealed up.

30. NATMANDIR, GUPTIPARA, DISTRICT HOOGHLY.—The bulged out portions of the walls of the temple were replaced with new brickwork and the basement was re-built as per original. The compound-wall was also repaired.

31. FIROZ MINAR, GAUR, DISTRICT MALDA.—The open joints of the minar were pointed with lime-cement mortar. A lightning conductor was provided and the fencing was repaired.

32. GUMTI GATE, GAUR, DISTRICT MALDA.—Two partly-broken pillars were restored to their original position.

33. EKLAKHI MAUSOLEUM, PANDUA, DISTRICT MALDA.—The decayed lime concrete of the terrace was renewed and the open joints were pointed. The fencing was also repaired.

34. QUTB SHAHI MOSQUE, PANDUA, DISTRICT MALDA.—The work of lime concrete terracing and recess pointing was continued.

35. TOMB AND MOSQUE OF ALIVARDI KHAN AND SIRAJU'D-DAULA, KHOSHBAGH, DISTRICT MURSHIDABAD.—The various items of works viz., replacement of worn-out beams and rafters of the tomb chamber, renewal of roof terracing, re-plastering of the inner surface of the walls, whitewashing the tomb chamber, renewing mouldings of the parapet wall, re-building the compound wall, removal of silt-deposit from drains and fixing of a cultural notice board were completed.

36. TOMB OF SHUJAU'D-DIN, ROSHNIBAGH, DISTRICT MURSHIDABAD.—The repairs to the monument consisted of the filling up the roof cracks with mortar by cutting 'V grooves, replacement of wooden door and expanded metal door, repair of compound wall, re-plastering and whitewashing of the tomb-chamber, renewal of the plaster work of the tomb with composite mortar, removal of silt from drain and providing a cultural notice board.

37. TOMB AND MOSQUE OF MURSHIDKULI KHAN, SABJI KATRA, DISTRICT MURSHIDABAD.—The roof was made watertight by re-setting loose brick-work. A cattle-proof gate and an iron gate were provided to the barbed-wire fencing of the compound. A cultural notice board was also fixed.

38. EXCAVATED RUINS, BANGARH, DISTRICT WEST DINAJPUR.—Composite brick-work in some of the walls was done.

MID-EASTERN CIRCLE

Bihar

39. RUINED FORTRESS AT NANDANGARH, DISTRICT CHAMPARAN.—The big trees growing on the remains of the *stupa* were uprooted and the damaged masonry watertightened in lime-motar.

40. EXCAVATED REMAINS AT NALANDA, DISTRICT PATNA.—Brickbats dumped in the past on the terrace of temple no. 13 were removed. Lime-concrete was laid after removing the old decayed one. The walls of the small temple in front of monastery no. 4 and those of temple no. 13 were watertightened by re-setting top courses in lime-mortar. The tops of all the votive *stupas* around site no. 3 were also made watertight.

41. ANCIENT MOUNDS AND CAVES AT RAJGIR, DISTRICT PATNA.—The monuments were cleared of rank vegetation and the collapsed dry stone masonry walls of Ajatasatru were repaired.

Uttar Pradesh

42. BUDDHIST REMAINS, KUSHINAGAR, DISTRICT DEORIA.—The collapsed structures were repaired and the tops watertightened.

43. RAMABHAR STUPA, KUSHINAGAR, DISTRICT DEORIA.—A substantial area of the *stupa* was cleared of vegetation and watertightened.

NORTHERN CIRCLE

Madhya Pradesh

44. LAKSHMANA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The sunken and bulged plinth of the platform on the southern side of the temple was set right.

45. MATANGESVARA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR,—The temple *sikhara* was made watertight by pointing the open joints with cement-mortar mixed with stone-dust.

46. TEMPLES AT AMARKANTAK, DISTRICT SHAHDOL.—Expanded metal door-shutters were provided in the door-openings of the temple for the safety of the temples.

Rajasthan

47. FORT, DISTRICT BHARATPUR.—The fort wall was underpinned with stone-masonry where the original courses had fallen out. The work is in progress.

Uttar Pradesh

48. FORT, AGRA.—The decayed bricks in the flooring of the Diwan-i-Am courtyard (western side) were replaced. The rampart-walls of the fort were underpinned and made watertight. The *dalans* in front of the Diwan-i-Am were underpinned after removing the decayed bricks. The walls of the third gate of Amar Singh gateway were re-plastered after removing the bulging plaster.

49. ROMAN CATHOLIC CEMETERY, AGRA.—The fallen compound-wall on the eastern side was restored.

50. TAJ MAHAL, AGRA.—The *dalans* of the forecourt on the western side were under pinned. The decayed plaster on the walls and ceilings was renewed and the concrete of the first floor roof of the mausoleum replaced. The decayed plaster of the ceiling of the main gate was also removed and re-done, reproducing the ornamental geometrical designs. Besides, the bulged wall on the east of the main gate was set right.

51. MONUMENTS AT FATEHPUR SIKRI, DISTRICT AGRA.—The roads along the monu ments were widened to serve two-way traffic. Murrum was spread at the car-park. Mosaic flooring was provided in the three rooms of the Dak Bungalow and dining hall and the pantry was provided with porcelain tiles.

52. SALIM CHISHTI'S TOMB, FATEHPUR SIKRI, DISTRICT AGRA.—The work of replace ment of marble slabs of the dome and the *chhajja* was completed.

53. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—The open joints of the flagstone pavement leading to the main mausoleum were pointed. The openings for natural lighting

were re-plastered. The surface was dressed for laying concrete in the forecourt of the gateway to the tomb.

54. BIBI TAMOLAN KA RAUZA, DISTRICT ALLAHABAD.—Plaster was re-done, where fallen, in the Rauza and iron gate-shutters were provided.

55. RESIDENCY, LUCKNOW.—The work of plastering the compound-wall of the Residency was completed.

56. EXCAVATED REMAINS AT KASHIPUR, DISTRICT NAINITAL.—The tops of the exposed walls of the temple were watertightened.

NORTH-WESTERN CIRCLE

Delhi

57. CITY WALL, DELHI.—Under a programme of special repairs, the portion of the city wall from Kashmiri Gate to Mori Gate was taken up for conservation. After thorough raking and washing, the joints of the random-rubble masonry of the wall were filled up with lime-cement mortar mixed with brick *zira*, suitably tinted to match the original colour. Overhanging masonry of the arches and pillars were supported by underpinning. The work on the remaining portion is in progress.

58. JAMI MASJID, DELHI.—In continuation of last year's work {*1969-70,* p. 89), the exfoliated sections of the stones of the soffits in the southern verandah were dressed. Joints of soffits and walls were recess-pointed, using suitably tinted mortar. Decayed stones of the pillars and arches were removed and replaced with new ones using copper-dowels in place of iron ones, both in the southern verandah and south-west basement wall.

59. KOTLA FEROZ SHAH, NEW DELHI.—In continuation of the last year's work *(1969-70,* p. 90), the replacement of stones of the flooring of the mosque was continued. The work is in progress.

60. MUMTAZ MAHAL, RED FORT, DELHI.—Under a programme of special repairs to this building, housing the Archaeological Museum, extensive plastering of the walls and ceilings after removing the dead and decayed plaster, has been taken up. The work of electrification consisting of concealed wiring through conduits and lighting of the show-cases and galleries has also been undertaken. The work is in progress.

Rajasthan

61. SIVA TEMPLE (NEELKANTH), GARH, DISTRICT ALWAR.—The sunken flooring stones of the apron around the temple were re-laid with proper slope in lime-cement mortar. In the temple-site of Mund Tod Ki Deorhi(pl. LXXXVIII A and B), opposite the Siva Temple, heavy stones from the surface were removed and stacked properly and the site was cleared by excavation. The loose sculptures recovered in the process were shifted to the sculpture-shed.

62. JAGAT SHIROMANI TEMPLE, AMBER, JAIPUR.—In order to prevent access of birds and bats into the temple, *iron jalis* were fixed in the openings.

63. PUNDARIKJI-KI-HAVELI, JAIPUR.—The cracks in the ceiling of the room containing paintings were filled, walls and ceilings of other rooms were plastered and teak-wood doors were provided in the opening.

64. RANTHAMBHORE FORT, SAWAI MADHOPUR.—Under a programme of special repairs to the Supari Mahal inside the fort, the work of grouting the cracks in the walls, pointing of loose joints and restoration of fallen portions of walls was done.

SOUTHERN CIRCLE

Kerala

65. MATTANCHERRY PALACE, COCHIN, DISTRICT ERNAKULAM.—Water supply and sanitary arrangements to the palace were improved.

Mysore

66. OLD DUNGEON, FORT AND GATEWAYS, BANGALORE.—The parapet of the restored bastion of the fort was completed (pl. LXXXIX A and B) in brick-work and plastered with combination mortar so as to match with surrounding old structures. The decayed plaster of the inner face of the Delhi Gate was also renewed reproducing the old designs.

67. ANANTASAYANA TEMPLE, ANANTASAYANAGUDI, DISTRICT BELLARY.—The broken lintel was replaced and the slabs of the ceiling of the *ardha-mandapa* were re-laid.

68. GROUP OF MONUMENTS, HAMPI, DISTRICT BELLARY.—Cultural notice boards in Kannada and English along with the map of Hampi ruins were fixed at four different places.

69. CHENNAKESAVA TEMPLE, BELUR, DISTRICT HASSAN.—The loose stucco figures of the *gopura* were fixed, filletted and edged to prevent further deterioration.

. 70. DARIYA-DAULAT-BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The protective screens to the murals were repaired and fixed.

71. NAGARKHANA, SRIRANGAPATNA, DISTRICT MANDYA.—Preventive measures were taken to stop seepage of" water and fresh plaster was laid on the outer face of the wall to replace the decayed one.

72. KESHAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—To prevent waterlogging all round the basement of the outer wall, a spread of thick gravel was laid.

73. KEDARESVARA TEMPLE, BELAGAVI, DISTRICT SHIMOGA.—The stone apron around the temple was re-set, providing the missing-stones and pointing the joints.

74. TRIPURANTESVARA TEMPLE, BELAGAVI, DISTRICT SHIMOGA.—The terrace meant for circumambulation around the temple was re-laid with granite stones to prevent seepage of water into the structure.

75. SHAHJI'S SAMADHI, HODIGERE, DISTRICT SHIMOGA.—The compound wall was repaired and plastered and the whole area was fenced to enclose a newly-laid garden as a measure of beautification of the monument.

76. MUSAFIRKHANA AND HONDA, SANTEBENNUR, DISTRICT SHIMOGA.—With a view to preventing misuse, an iron grill-door was fixed at the arch-opening of the monument.

77. TEMPLES AND INSCRIPTIONS, UDIPI, DISTRICT SHIMOGA.—A dwarf-wall of laterite stone-masonry was raised to protect the temple from erosion.

78. CHATURMUKHA BASTI, KARKAL, DISTRICT SOUTH KANARA.—The fallen compound-wall around the complex was re-built using original material.

79. CHENNAKESAVA TEMPLE, NAGALPURA, DISTRICT TUMKUR.—The basement was underpinned with course-rubble masonry with a view to preventing further sinking and sliding down of stones.

Tamil Nadu

80. GROUP OF MONUMENTS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—Cultural notice boards in Tamil and English were provided at two junctions.

81. SHORE TEMPLE, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The tottering random-rubble masonry of the retaining wall was reconstructed after providing proper foundation. The stepped entrance was widened. Stones and carved images lying scattered around the temple were collected and properly arranged.

82. VAIKUNTHA-PERUMAL TEMPLE, UTTARAMERUR, DISTRICT CHINGLEPUT.—The compound of the temple has been fenced and the raised *pial* around the temple was provided with a stone flooring.

83. CHANNARAYAPERUMAL TEMPLE, ADAMANKOTTAI, DISTRICT DHARMAPURI.—The terrace of the temple was made watertight and the closed *mahamandapa* was provided with grilled opening.

84. CLIVE'S BUILDINGS, FORT ST. GEORGE, MADRAS.—Repairs to the dark cells in the ground floor and extensive plastering to the walls of the rooms were done.

85. SOMANATHA TEMPLE, MALPADI, DISTRICT NORTH ARCOT.—The north-western part of the temple wall was reconstructed and outer surface plastered, besides widening the sky opening of the terrace of the *ardha-mandapa.* The accretionary wall in the south-eastern part of the *dalan* enclosing the *Sapta-matrikas* was removed and replaced by iron-grills with a door to ensure safety of the sculptures.

86. ROCK-CUT CAVE TEMPLE, KUNNAKKUDI, DISTRICT RAMANATHAPURAM.—The portion of the roof connecting the structural *mandapa* with the rock-face of the cave temple was rendered watertight.

87. VISHVAKSENA SHRINE INSIDE NARASIMHASVAMI TEMPLE, NAMAKKAL, DISTRICT SALEM.—The terrace of the *mandapa* and sanctum was re-laid and rendered watertight, after replacing the broken stone beam and ceiling slabs. To prevent seepage of water into the foundation of the temple, the area around the shrine was paved with stones with joints duly pointed.

88. PALACE SITE, GINGEE, DISTRICT SOUTH ARCOT.—A stepped structural platform built in rubble-masonry was exposed to view.

89. SAADAT-ULLAH KHAN'S MOSQUE, GINGEE, DISTRICT SOUTH ARCOT.—The fallen parts of the minarets at a height of about 21 metres were reconstructed as per original design. The worn-out stone flooring was replaced by a new one laid on sand base.

90. VENKATARAMANA TEMPLE, GINGEE, DISTRICT SOUTH ARCOT.—The cut-stone frame of the belfry was re-set to proper plumb and the hidden original construction was exposed by earthwork excavation.

91. AIRAVATESVARA TEMPLE, DARASURAM, DISTRICT THANJAVUR.—The damaged stone-flooring of the courtyard was re-set with proper gradient for draining out the rain water. The accretionary structures around the shrine of Dakshinamurti were also removed.

92. BRIHADISVARA TEMPLE, THANJAVUR.—Crevices and fissures in the inside wall of the *garbhagriha* of the Great Temple were grouted and pointed. Broken edges of the pillars were strengthened by dowels which were covered with concrete, matching the original texture. The lintels of the inner door of the sanctum were strengthened by means of reinforcement. The decayed terrace of the *madapalli* was re-laid and rendered watertight. After proper dressing, the old stones scattered in the compound of the temple were put to use in re-laying the flooring inside the Keralantakan *gopuram.*

93. SIVAGANGA LITTLE FORT, THANJAVUR.—The bastion on the eastern side of the fort which stood in a precarious condition due to undercutting was re-built and under pinned with available old laterite stones. The fallen part of the inner fort wall on its eastern side was also re-built utilizing the available old stones. The portion of the wall abutting the Keralantakan *gopuram* was exposed and pitched with dry stone masonry.

94. BRIHADISVARA TEMPLE, GANGAIKONDACHOLAPURAM, DISTRICT TIRUCHCHIRA-PPALLI.—The southern corner of the *mandapa* of the Nayaka period was rendered water tight after re-laying in mortar two courses of the brickwork.

95. BALASUBRAHMANYA TEMPLE, KANNANUR, DISTRICT TIRUCHCHIRAPPALLI.—A concrete wall was constructed below the ground level at the start of the slope of the embankment to the irrigation tank by the side of the temple to prevent seepage of water into the courtyard of the temple. The side of the embankment was pitched with dry stone.

96. MUCHUKUNDESVARA TEMPLE, KODUMBALUR, DISTRICT TIRUCHCHIRAPPALLI.—The veneer stones of the compound wall, acting also as revetment to the tank-bund, were re-fixed.

97. FORT, TIRUMAYAM, DISTRICT TIRUCHCHIRAPPALLI.—The inner face of the fort wall was pointed and a thin masonry wall constructed to prevent respectively the seepage of water and the flow of rain-water through the joints of the masonry. The ditch wherefrom the collected rain-water had been flowing into the fort wall was filled up with earth.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

98. HILL FORT, GOOTY, DISTRICT ANANTAPUR.—A retaining wall of the drainage-channel was strengthened to stand heavy flow of water during rains. The old stone drain which was being eroded has also been repaired by filling up the breaches and reinforcing the embankment with rubble stone packing.

99. VEERABHADRA TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—The sunken and uneven flooring of the *natyamandapa* and *sabhamandapa* have been re-set over a bed of sand after a thorough consolidation. The foundations of the pillars were also strengthened by grouting with liquid cement.

100. KODANDARAMASVAMI TEMPLE, VONTIMITTA, DISTRICT CUDDAPAH.--The leaky roof of the main temple was watertightened. Cut-stones were purchased for the roof of *vagasala-mandapa.*

101. FORT, GOLCONDA, DISTRICT HYDERABAD.—The living apartments adjoining the Khilawat were cleared of debris. During clearance, sinks and underground drainage in each apartment were exposed (pl. XG A and B). It was found that each unit had independent cisterns for the storage of water.

The open courtyard between the Rani Mahal and Khilawat was cleared of vegetation and flooring has been re-set with old stones. About 1000 square metres of area has been neatly exposed.

The adjuncts to Rani Mahal were also cleared of the huge debris consisting of architectural fragments and chunks of walls containing stucco decorations. The work is in progress.

102. CHARMINAR, HYDERABAD.—The damaged stucco work on the walls, pillars and friezes in the mosque area of the second floor of the *minar* has been repaired and the mouldings are being restored (pl. XCI A and B) as per original design.

103. JAMMIDODDI PILLARED MANDAPA, VIJAYAWADA, DISTRICT KRISHNA.—The pillared *mandapa* was dismantled and reconstructed (pl. XCI I A and B) on the original lines.

104. UMA-MAHESVARA TEMPLE, YAGANTI, DISTRICT KURNOOL.—The restoration of the fallen portion of the enclosure wall adjoining the *mandapa* was completed.

105. MUKHALINGESVARASVAMI TEMPLE, MUKHALINGAM, DISTRICT SRIKAKULAM.—The damaged portion of the *sikhara* was restored to its original shape. Lime-plaster accretions were removed and inscriptions have been brought to light.

106. SOMESVARA TEMPLE, MUKHALINGAM, DISTRICT SRIKAKULAM.—The *amalaka* of the *sikhara* was watertightened and the dilapidated portion was restored to its original shape (pl. XCIII, A and B). The cracked bottom portion of the *stupa* was grouted and the surface plastered with lime-cement mortar. The damaged portion of the ground near the doorway was also filled up and plastered. Fencing was provided around the protected area with a turnstile gate for the entry and exit of the visitors.

Maharashtra

107. BALLARPUR FORT, BALLARSHAH, DISTRICT CHANDRAPUR.—The dilapidated structures around the Rani Mahal were cleared and the remains of the old wall exposed. The outgrowth of vegetation was also cleared from the southern side of the fort. The artificial gutter formed as a result of uneven debris accumulation by the side of the foundations towards the river side was filled up and levelled.

108. MARKANDESVARA TEMPLE, MARKANDA, DISTRICT CHANDRAPUR.—The fallen portions of the compound wall towards the river were reconstructed.

WESTERN CIRCLE

Gujarat

109. SAYYID USMAN MOSQUE, AHMADABAD.—The flooring, which was damaged, was replaced by new one matching the original.

110. JAMI MASJID, BHARUCH.—The fallen and damaged brick-work was re-set in cement mortar. The cracks in the wall consequent to the earthquake in the past were opened and re-filled with cement-mortar mixed with hydrofugs. Some minor cracks were filled with bitumen.

111. DWARKADHISH TEMPLE, DWARKA,, DISTRICT JAMNAGAR.—Under special repairs to the Dwarkadhish temple, the preservation work on this temple was continued. The damaged pillars in the second and third storey of the balcony of the *sabhamandapa* were replaced along with capitals and brackets, reproducing the original mouldings (pl. XCIV). A number of damaged and weathered carved stones on the outer face of the wall of the *garbhagriha* have also been replaced, duly carved as per original pattern. All the stones were procured from the Choubari quarry which conform to the original stones.

112. PURSHOTTAMJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—The damaged and weathered *adhisthana* mouldings of the temple were replaced, duly carved on the original pattern.

113. TRIVIKRAMJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—The damaged and defaced *adhisthana* mouldings have been replaced by newly-moulded Chaubari stones after providing rubble revetment at the back of them. The work is in progress.

114. GALTESHVARA TEMPLE, SARNAL, DISTRICT KHEDA.—An apron of Dhrangadhra stone over a concrete cushion was provided to the temple to arrest water percolation into the foundation of the temple.

115. SUN TEMPLE, MODHERA, DISTRICT MAHESANA.—A garden has been laid out in front of the *kund* of the temple.

116. RANI-KI-VAV, PATAN, DISTRICT MAHESANA.—The work of removing a huge pile of loose sculptures and stones, taken up in the previous year (1969-70, p. 103), was continued. The northern side wall, which was in a dilapidated condition has been set right and its loose sculpture set in position.

117. SHAHAR-KI-MASJID, CHAMPANER, DISTRICT PANCH MAHALS.—The front portion of the wall was restored with brick and ashlar masonry in cement-mortar. Pointing and cement plastering were done to stop leakage of water to the structure. The wire fencing was also mended.

Rajasthan

118. JAINA TEMPLE NEAR SIVA TEMPLE NO. 4, ARTHUNA, DISTRICT BANSWARA.—Grouting and underpinning were done to set right the ashlar masonry of the temple.

119. SIVA TEMPLE NO. 4, ARTHUNA, DISTRICT BANSWARA.—The temple was fully dislodged by a pipal tree. After dismantling the masonry, it was reconstructed as per original in lime-cement mortar. The architectural members and sculptures were re-set in their original position. The high plinth was cleared of debris and the missing portions along the niches were reconstructed. The work is in progress.

120. SOMANATH TEMPLE, ARTHUNA, DISTRICT BANSWARA.—The debris was cleared and the portions which were out of plumb were set right. The sculptures were recovered from the debris and set in their original position in the temple. The whole plinth, which was covered by debris, was exposed.

121. PADMINI PALACE, FORT, CHITORGARH.—The decayed lime concrete flooring of the Mirror Room and the Rang Mahal of the palace was removed and a fresh concrete cushion for the new Manpura stone flooring was provided. The damaged and decayed top portions of the walls of the adjoining structures were watertightened with the addition of hydrofuge in the mortar.

122. RANA KUMBHA PALACE-COMPLEX, FORT, CHITORGARH.—Removal of the decayed concrete flooring and provision of 1:2:4 cement-concrete cushion for a new flooring of Manpura stones in the Zanana Mahal and in the north-eastern part of the palace was taken up.

123. BAVAN DEORI,_ KUMBHALGARH FORT, DISTRICT UDAIPUR.—The eastern side shrines of this temple were provided with ceiling stones, *chhajja,* lintels and coping stones wherever broken or missing.

124. JAINA TEMPLE NEAR BAVAN DEORI, KUMBHALGARH FORT, DISTRICT UDAIPUR.—The structural members of the *antarala* of the temple which had fallen were re-set in their original position. The fallen dome of the *garbhagriha* was repaired and watertightened by providing a brick core under a casing of lime-cement mortar.

125. JAINA TEMPLE IN GOLERAO GROUP OF TEMPLES, KUMBHALGARH FORT, DISTRICT UDAIPUR.—The temple, which was in a dilapidated condition, was reconstructed on the original lines. The architectural members and sculptures of the *mandovara of the garbhagriha* and *sabhamandapa* were recovered from the debris and re-set in original positions. The dead lime concrete from the dome and terrace of the *sabhamandapa* was removed and fresh lime-cement concrete provided to check percolation of rain water.

126. JAINA TEMPLE NEAR VAJEH POLE, KUMBHALGARH FORT, DISTRICT UDAIPUR.—The bulging portions were set right and the missing parts replaced with new stones. The *garbhagriha* was underpinned.

MONUMENTS MAINTAINED BY STATES

ANDHRA PRADESH

The following monuments were conserved under the conservation grant of the Department:

1. NAWAB'S TOWER AND SYED AHMED'S TOMB AT CUDDAPAH.
2. BRAHMA TEMPLE AT CHEBROLE, DISTRICT GUNTUR.
3. VEERABHADRASWAMY TEMPLE AT PHIRANGIPURAM, DISTRICT GUNTUR.
4. NARASIMHASWAMY TEMPLE AT VINUKONDA, DISTRICT GUNTUR.
5. SOMESWARASWAMY TEMPLE, KULPAK, DISTRICT NALGONDA.
6. KAKATIYA TEMPLE, NAGNUR, DISTRICT KARIMNAGAR.
7. ERUGULAMMA TEMPLE AT NELLORE.

ASSAM

8. ARCHAEOLOGICAL RUINS AT BAMAN GAON, DISTRICT DARRANG.—The site was partly fenced and the sculptures were systematically arranged.

9. BASUDEV DOL, KALABARI, DISTRICT DARRANG.—The age-long debris was cleared from the sanctum and all the damaged walls of the sanctum repaired. The arched gateway was reconstructed and some of the vertical cracks repaired. Some portions of the *jangha* and the extrados of the *vimana* were also repaired.

10. MANIKARNESVAR TEMPLE, NORTH GAUHATI, DISTRICT KAMRUP.—The walls of *jagamohana* were repaired. The top of the projections of walls at the spring-line were laid with lime-concrete. The arched gateway was also repaired.

11. MAGHNOWA TEMPLE, PADAMPUR, DISTRICT LAKHIMPUR.—The vegetation was cleared and the damaged outer walls of the temple were repaired.

12. HAR-GAURI DEVALAYA, JAYASAGAR, DISTRICT SIBSAGAR.—The structure was grouted and the damaged inside-walls were repaired. The disintegrated roof was laid with lime concrete.

13. DEBI DOL, NAMATI, DISTRICT SIBSAGAR.—The vegetation was cleared and the entire temple was grouted. The extrados of the *vimana* was completely repaired. The *mandapa* walls were underpinned.

14. VISHNU DOL, NAMATI, DISTRICT SIBSAGAR.—The decayed brick-work of the *vimana and jangha* were repaired. The *mandapa* was underpinned and the plaster renewed where necessary.

15. DHAKNA DOL, RONGPUR, DISTRICT SIBSAGAR.—Vegetation was cleared from the stepped plinth and accumulated debris were removed from the sanctum.

16. NA-PUKHURI DOL, RUDRASAGAR, DISTRICT SIBSAGAR.—The disintegrated masonry of the extrados was cleared and repaired. The deep-rooted trees in the upper part of the *vimana* have been uprooted and the cracks sealed.

GUJARAT

Conservation work was done on the following monuments during the period under review:

17. STEP-WELL, AHMADABAD.

18. STEP-WELL, HADAD, DISTRICT BANASKANTHA.

19. PRACHIN MANDIR, KALASAR, DISTRICT BHAVNAGAR.

20. BHUCHAR MORI DERI, BHROL, DISTRICT JAMNAGAR.

21. CHELESHWAR MANDIR, GHUMLI, DISTRICT JAMNAGAR (pl. XCV A and B).

22. NAVALAKHA TEMPLE, GHUMLI, DISTRICT JAMNAGAR.

23. RAMAPOLE GATE, GHUMLI, DISTRICT JAMNAGAR.

24. MORPAR GADH, MORPAR, DISTRICT JAMNAGAR.

25. JAMI MASJID, JUNAGADH.

26. PANCHESVAR GUPHA, JUNAGADH.
27. SRIMATI KASTURBAI HOUSE, PORBANDAR, DISTRICT JUNAGADH.
28. UPARKOT-KOTHAR, JUNAGADH.
29. KUND, KAPADVANJ, DISTRICT KHEDA.
30. STEP-WELL NO. 1, KAPADVANJ, DISTRICT KHEDA.
31. STEP-WELL NO. 2, KAPADVANJ, DISTRICT KHEDA.
32. STEP-WELL, MAHEMADAWAD, DISTRICT KHEDA.
33. SHAKTI KUND, AKHAJ, DISTRICT MAHESANA.
34. SHITALAMATA TEMPLE, BUTAPALDI, DISTRICT MAHESANA.
35. STEP-WELL, MANASA, DISTRICT MAHESANA.
36. STEP-WELL, MODHERA, DISTRICT MAHESANA.
37. TEMPLE WITH INSCRIPTION (KALESHVARI), LAVANA, DISTRICT PANCH MAHALS.
38. KUND, LAVANA, DISTRICT PANCH MAHALS.
39. SASU-NI-VAV, LAVANA, DISTRICT PANCH MAHALS.
40. GA BENSHA'S-VAV, PAVAGARH, DISTRICT PANCH MAHALS.
41. SARAI, PAVAGARH, DISTRICT PANCH MAHALS.
42. SANKALESVAR MANDIR, JUNI SANKLI, DISTRICT RAJKOT.
43. MIN-LA-VAV, VIRPUR, DISTRICT RAJKOT.
44. JAINA AND SIVA MANDIR, ABHAPUR, DISTRICT SABARKANTHA.
45. SANESHWAR MAHADEVA'S TEMPLE, ABHAPUR, DISTRICT SABARKANTHA.
46. JAINA AND SIVA MANDIR, ATARSUMBA, DISTRICT SABARKANTHA.
47. SIVA PANCHAYATANA MANDIR, BHETALI, DISTRICT SABARKANTHA.
48. STEP-WELL, DHOLIVAV, DISTRICT SABARKANTHA.
49. KUND, IDAR, DISTRICT SABARKANTHA.

50. STEP-WELL, IDAR, DISTRICT SABARKANTHA.

51. STEP-WELL, TINTOTI, DISTRICT SABARKANTHA.

KERALA

The conservation of the monuments noted below was taken up during the year. The work mainly consisted of adding reinforcements to the damaged portions, re-plastering old walls and filling up of gaps, replacement of old wooden rafters, etc., in accordance with the principles of conservation.

52. KRISHNAPURAM PALACE, KRISHNAPURAM, DISTRICT ALLEPPEY.

53. IRUNILAKKODE TEMPLE, MALLURKARA, COCHIN, DISTRICT ERNAKULAM.

54. EZHIMALAI MOSQUE, TEMPLE FORT, EZHIMALAI.

55. CHENTAMATHU TEMPLE, CHANTHANNUR, DISTRICT QUILON.

56. TIRUNARAYANAPURAM TEMPLE, CHIRAYINKIL, TRIVANDRUM.

MAHARASHTRA

57. KANKALESWAR TEMPLE AT BIR.— Special repairs are being carried out to the temple.

58. KUDA CAVES, KUDA, DISTRICT KOLABA.— The caves were inspected for protection.

59. SAMADHI OF RAMACHANDRAPANT AMATYA, PANHALA, DISTRICT KOLHAPUR.— The programme for the renovation of Samadhi is under consideration.

60. FORT, KANDHAR, DISTRICT NANDED.— The clearance work at the fort was completed.

61. VEER SAVARKAR'S HOUSE, BHUGUR, DISTRICT NASIK.— The proposal for the preservation and protection of the house is under consideration.

62. AUSA AND PARANDA FORTS, DISTRICT OSMANABAD.— The clearance work at both the forts was completed and the approach road was repaired.

63. MAHATMA PHULE'S HOUSE AT PUNE.— Some minor repairs were carried out to the house.

ORISSA

64. KANKESWAR TEMPLE, KUALA, DISTRICT DHENKANAL.— The work of preservation of the temple is in progress.

65. FORT, GANJAM.— The work of repairs to the fort is in progress.

66. CHANDI TEMPLE, KENDULI, DISTRICT PURI.— The renovation of the temple is in progress.

67. SUKSHMESVAR TEMPLE, SAMANTARPUR, BHUBANESWAR, DISTRICT PURI.------ The monuments have been renovated.

RAJASTHAN

Conservation and clearance work were done at the following important monuments by the Department:

68. KLRADU TEMPLES, DISTRICT BARMER.

69. RAJA BHIR MAL'S CHHATARI, AMBER, JAIPUR.

70. RAJ MAHAL PALACES, AMBER, JAIPUR.

71. MAHARAJA'S CHHATARIS AT GAITOR, JAIPUR.

72. MAHARANI'S CHHATARIS, JAIPUR.

73. JANTAR MANTAR, JAIPUR.

74. NAKATI MATA TEMPLE NEAR JAIPUR.

75. DEVALS IN MANDORE GARDENS, JODHPUR.

76. JASWANT THARA, JODHPUR.

77. OSIAN TEMPLES, DISTRICT JODHPUR.

78. KRISHNA VILAS, KOTAH.

79. NEEMAJ TEMPLES, DISTRICT PALI.

80. CHANDRAWATI TEMPLES, DISTRICT SIROHI.

TAMIL NADU

81. RUINED SIVA TEMPLE, KURAM, DISTRICT CHINGLEPUT.— Vegetation surrounding and covering the temple was removed. The *adhisthana* was restored to its original condition. In order to preserve the remaining walls of the *garbhagriha* and to provide a shelter to the Siva inside, an apsidal brick structure was re-erected, the flooring inside the front *mandapa* was repaired and the top of the front *mandapa* was watertightened,

82. CHANDRAPRABHA TEMPLE, TIRUPARUTHIKUNRAM, DISTRICT CHINGLEPUT.— Plastering was re-done wherever necessary; the flooring on the upper storey was repaired and a wooden door provided. An information board was put up.

83. PADMANABHAPURAM PALACE, THUCKLEY, KANNIYAKUMARI.

84. SADAIYARKOIL, DISTRICT THANJAVUR.—The available *vimana* portion was re-set. A glass was provided to allow light to the interior of the *garbhagriha.* The fallen western wall was restored and the pillars of the *mukhamandapa* re-set in position.

85. KALINGA SCULPTURES, GANGAIKONDACHOLAPURAM, DISTRICT TIRUCHCHIRAPPALLI.— A building has been erected and all the sculptures are now preserved and protected in the building.

86. AMALISWARAM, GOPURAPATTI, DISTRICT TIRUCHCHIRAPPALLI.— The front wall of the *mukhamandapa* was dismantled and restored. A broken beam of the *mandapa* was re-set after dismantling the roof.

87. PACCIL MERRALI, PACHUR, DISTRICT TIRUCHCHIRAPPALLI.— The vegetation was removed and the basement cleared.

IX. EXPEDITION OUTSIDE INDIA

PRESERVATION OF BUDDHIST SHRINES AT BAMIYAN, AFGHANISTAN

In pursuance of the cultural agreement with Afghanistan, conservation work on the Small Buddha (pl. XGVI A), commenced during 1969 *(1969-70*, p. 108), was continued during the year under review. The team was led by Shri R. Sengupta with Dr. B. B. Lai as the Scientific Advisor. The following items of repairs were executed.

STRUCTURAL PRESERVATION

To drain off the snow melt from the facade of the shrines, three masonry catch drains, 350 metres long, were constructed on the hill-top (pl. XGVI B).

In Cell Nos. 2 to 4 behind the Small Buddha, as also in the walls behind and to the left, underpinning was carried out in cement mortar (pl. XGVIIIA and B) for a height of about 2 m. from floor. After clearing the debris in the cell immediately behind the Small Buddha, the lay-out of the cell, which was octagonal on plan, was clearly brought out. The damaged jambs of Cell No. 1 in the ground floor were made good and a reinforced cement concrete lintel provided for the opening. The cracked legs of the Buddha were held in position by concealed tie-bolts, running right across from face to face, and the cracks were grouted. The accretionary masonry covering the feet of the Buddha was cleared and the feet rendered watertight by finishing it in cement concrete (pl. XCVII A and B). No attempts were made to restore the feet but only stumps were left. After fixing iron dowels across the cracks in the walls (pl. XGIX A and B and C A and B) between the open verandahs in front of Cell Nos. 2 to 6, they were grouted with cement mortar. All new works and repairs were finished to match with the adjoining rock. The large crack in the west wall of the main niche was grouted to a height of 10 metres from the ground. Necessary dowels were fixed across the crack and the face was finished to match with the rock. For fixing dowels in the various places, about 118 metres of holes were drilled in the rock with the help of the drilling engineer of the Geological Survey of India. These include twenty-nine holes for fixing 24 mm. diameter tie-rods. Photographic documentation was made of all works carried out before, during and after execution.

CHEMICAL PRESERVATION

The following items of work were executed.

Complete chemical treatment (excluding application of preservative fixative solution) for an area of 5 sq. m. of painted plaster on the west wall of the main niche of the Small Buddha, between heights of + 28 m. to +30 m., was carried out. Similar work was executed to an extent of 60 sq. m. in Cave No. 11.

Other items of chemical work included edging of plaster with tinted plaster of Paris for a length of 40 metres, and fixing back and filletting of loosened painted plaster over an area of 22 sq. m.

Besides the above, plans were prepared of Cave Nos. 11 and 12 of the Small Buddha and the caves of the Big Buddha, and tracings were made of four painted panels, about 40 cm. x 50 cm. each, in Cave No. 11 (Small Buddha). Four plaster casts of the small seated Buddha in Cave No. 14 were also prepared.

Photographs were taken before and during the execution of works.

X. ARCHAEOLOGICAL CHEMISTRY[1]

TREATMENT OF MONUMENTS AND PAINTINGS

BIHAR

1. STUCCO PANELS IN MONASTERY AT NALANDA, DISTRICT PATNA.—Stucco figures at Site No. 3 were cleared of vegetation and dusty deposits. Soluble crystallizing salts, mostly sulphates, were also removed. The stucco panels are subject to continuous inflow of soluble salts. Fine cracks in the stuccoes were also made up. Broken edges and corners were fille-tted. Since the stuccoes are exposed to direct heat and moisture, their chemical treatment has to be occasionally repeated.

DELHI

2. GOLDEN PAINTINGS ON THE WOODEN CEILING OF DIWAN-I-KHAS, RED FORT, DELHI.—The chemical treatment and preservation of these golden paintings executed on fabric was continued. On account of the humid condition of the false ceiling, its fixative bond with the fabric tends to weaken. Fixation of the fabric to the wooden support of the ceiling was secured. Removal of accretion and insect wax comprises a sizable part of the work of cleaning.

3. MARBLE WORK, DIWAN-I-KHAS, RED FORT, DELHI.—The ornate marble pillars, plinth and walls of the Diwan-i-Khas are covered with dust and grease. Marks formed by humic and ferruginous compounds have also disfigured the marble panels at many places. These were successfully removed with the help of ammonia, emulsifying and sequestrating agents. The chemical treatment has restored much lustre to both marble and the pigmented inlay decoration.

MADHYA PRADESH

4. VISHVANATHA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—Chemical treat ment of the sculptures was continued from the *sikhara* down to the lower parts of the temple. The work included eradication of vegetation and removal of lime-wash with the use of ammonia and acetic acid and drawing out of soluble crystalline salts as far as possible with the help of wet paper-pulp.

5. BUDDHIST STUPA, SANCHI, DISTRICT RAISEN.—Cleaning of growth of moss and fungus on the gateways of the main *stupa* was completed. A small portion of the railing was also taken up for similar chemical treatment.

ORISSA

6. SCULPTURED PANELS, RATNAGIRI, DISTRICT CUTTACK.—Some loose sculptures and carved panels in Ratnagiri, overgrown with moss and fungal accretion, were subjected to chemical treatment and preserved. Zinc silicofluoride was used as a fungicide.

Information from the Chief Archaeological Chemist of the Survey.

7. DAKSHA PRAJAPATI TEMPLE, BANPUR, DISTRICT PURI.—Chemical treatment of the sculptures on the *jagamohana* was completed. Sculptures in the *vimana*, thickly covered with moss, tufts of lichen and a bearded growth of roots, were taken up for cleaning. Fatty substances sticking to some sculptures were emulsified with lissapol detergent and washed off.

8. LINGARAJA TEMPLE, BHUBANESWAR, DISTRIGTPURI.—The thick slimy deposits of soot, oil and grease and lime-wash covering the inner walls of the sanctum were taken up for cleaning. The work was carried out over a large area using a number of chemicals like teepol, acetic acid and ammonia. The work was made possible by the efforts of the local Endowment Board who pursuaded the priests of the temple to the necessity of a clean holy interior which now presents a tidy look wherever so treated.

9. PARBATI TEMPLE, BHUBANESWAR, DISTRICT PURI.—The outer surface of the temple was thickly covered with moss and lichen and at places with a fatty deposit. The deposit was softly scrubbed after treatment with ammonia and anionic lissapol. The work is in progress.

10. SUN TEMPLE, KONARAK, DISTRICT PURI.—The large sculptures of drummers, musicians and animals on the third row *of pidhas* are overlaid with moss and a little lichen. Some of the figures are also affected with soluble salts. The figures were subjected to chemical treatment. Since the surface of these figures is heavily eroded and pitted, removal of the accretion was time-consuming. Final trials on the application of ochre and clay suspensions on the sculptures previously cleaned were also executed. The application of ochre suspensions to reduce the porosity of the eroded stone and to minimize the abrasive effect of lashing sands would now be extended. Some loose sculptures were also cleaned and preserved.

11. SCULPTURES IN UDAYAGIRI CAVES, BHUBANESWAR, DISTRICT PURI.—Sculptures in eight caves were chemically treated for removal of an extensive calcareous deposit, greasy and oil compounds and moss. Acetic acid solution was used to solubilize the hard calcareous crust which was chased by calcified waters seeping from behind the rock.

PUNJAB

12. TOMB OF PUPIL MUSICIAN, NAKODAR, DISTRICT JULLUNDUR.—Removal of accretions like moss and tufts of lichen, dust-laden water-marks and roots was continued. The tiled surfaces so cleaned were given fungicidal and preservative treatment. Accretion was also removed from the painted areas.

UTTAR PRADESH

13. MRITYUNJAYA TEMPLE, JAGESHWAR, DISTRICT ALMORA.—This famous temple in the hilly regions of Uttar Pradesh is subject to disfigurement by vegetational growth and the deleterious effects of freezing waters on the crystalline matrix of the stone. A large part of the temple has been freed of the accretions and the outer layers of stone consolidated as far as possible.

14. PILLAR OF SAMUDRAGUPTA, FORT, ALLAHABAD.—This inscribed sandstone column was subjected to chemical treatment for removal of patches of vegetational growth, iron base stains and thick dusty deposit especially near the floor-level. The work was completed.

15. BRICKS IN ASVAMEDHA SITE, KALSI, DISTRICT DEHRA DUN.—These porous and exposed bricks which were overgrown with moss, were cleared of accretions and consoli dated. Mercuric compounds were found here stronger deterrent to development of moss than zinc silicofluoride. The use of the latter fungicide on this monument was, therefore, given up.

16. PAINTINGS IN RANI LAKSHMI BAI'S PALACE, JHANSI, DISTRICT JHANSI.—These paintings are disfigured with splashes of lime-wash, water-marks and with a varnish which is now only partially soluble due to alteration brought about by heat and light radiation. Chemical treatment of these paintings was continued and the peeling paint-layer and plaster was consolidated and fixed.

WEST BENGAL

17. JOR BANGLA TEMPLE, VISHNUPUR, DISTRICT BANKURA.—The terracotta panels of this temple are disfigured with a coat of moss, ochre and lime-wash, soot and greasy material. The panels were subjected to chemical treatment for removal of moss and soot mainly with the help of ammonia and triethanolamine, respectively. Other detergents like teepol and lissapol were also brought into use. Ochre and lime were loosened with the use of diluted acetic acid and scrubbed with soft brushes. The panels on the lower level of the temple have become friable on account of repeated crystallization of soluble salts. These salts were also extracted as much as possible. The work would continue.

18. WALL-PAINTINGS IN BRINDABAN CHANDRA TEMPLE, GUPTIPARA, DISTRICT HOOGHLY.—In continuation of last year's work (*1969-70,* p. 111), chemical treatment of these paintings was continued. The paintings have deposits of dust and grease, insect wax and cobwebs, soot and marks made by humic material. The pigment is also flaking over some areas on account of efflorescence caused by rising waters. A number of organic solvents like acetone, methyl, cellosolve benzene, isobutyl alcohol were used during chemical treatment. The cleaned paint layer was consolidated and preserved.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS

Five thousand, seven hundred and twelve antiquities were chemically treated and preserved. Out of these, four thousand were copper coins from Hauz Khas, Delhi, one thousand, four hundred and twelve silver and copper coins from different sites, thirteen iron and copper objects from Kashipur, District Nainital, one hundred and six iron objects from Purana Qila, New Delhi and four paintings from the Bijapur Museum.[1]

The Brahma Kund at Shrihor in District Bhavnagar, Prachina Jaina Mandir at Prabhas Patan, District Junagadh, Sankleshwar Mandir at Juni Sankali and Khambhalida

[1] Information from the Chief Archaeological Chemist of the Survey.

caves in District Rajkot, and the *kund* and sculptures at Kaleshvari and in District Panch Mahals in Gujarat were chemically treated and preserved.[1]

About nine hundred and fifty coins, four hundred and forty-nine wall frames containing lesson-cards, miniature paintings and textiles from the Central Museum, Jaipur, seven hundred terracottas, some of which are from Noh excavations, eight sculptures from Mahuwa and Noh, eight camel leather bowls decorated with gold work, were chemically cleaned and preserved.[2]

ANALYSES AND RESEARCH[3]

GEOCHRONOLOGICAL STUDIES.—The geochronological investigation of sites such as Bonkati, Kankadara and Nalhati in District Birbhum, West Bengal, were carried out besides the finalization of the report on Ootacamund laterites and Indian laterites.

CHEMICAL ANALYSIS.—Soil specimens from excavations at Purana Qila, New Delhi, were mechanically and chemically analyzed. Four metal objects from Kalibangan, District Ganganagar, Rajasthan, and glass specimens from Dharanikota, District Guntur, Andhra Pradesh, were chemically examined. Weights of two hundred and ninety-two silver coins from Darora in Rajasthan were also determined.

Considerable progress was made in photographic documentation work in colour as well as in black and white. Tracing of fifty-five paintings from Ajanta, Ellora and Rani Mahal, Jhansi, were reproduced in ink. Plans and elevations of the Buddhist monuments at Bamiyan, Afghanistan, were also prepared. A plaster cast of lotus petals was prepared from the stucco of Cave No. 14 of the Small Buddha cave-complex at Bamiyan, Afghanistan.

[1] Information from the Director of Archaeology, Gujarat State.
[2] Information from the Director of Archaeology and Museums, Rajasthan State.
[3] Information from the Chief Archaeological Chemist of the Survey.

XI. ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. KHAZANA BUILDINGS, GOLKONDA.—This garden was in a neglected state but during the period under review the hedges and lawns were properly trimmed and ornamental shrubs were planted.

2. QUTB SHAHI TOMBS, GOLKONDA.—During the period under review, four more quadrants were developed by laying lawns and planting ornamental plants. Fruit-bearing trees like banana, citrus and figs and flowering plants like jasmine and roses were also planted.

3. HILL-TOP, NAGARJUNAKONDA, DISTRICT GUNTUR.—Clearance of jungle and huge boulders towards the left side of the jetty on the hill-top was taken up. A large lawn was laid out in front of the museum-building. Around the museum a good number of ornamental flowering and fruit trees were planted.

DELHI

4. ARAB-KI-SARAI, NEW DELHI.—All the Casualties of trees and bougainvillias were made good.

5. HUMAYUN'S TOMB, NEW DELHI.—Some new beds for annuals were introduced. Rare varieties of roses, bougainvillias and palms were planted and picnic spots were beautified.

6. HUMAYUN'S TOMB NURSERY, NEW DELHI.—The glass house was repaired and the old chicks were replaced. In the low-lying area, the propagational work of shrubs, roses, creepers and shade-loving plants was in full progress. Plants of many varieties were supplied to other archaeological gardens.

7. TOMB OF KHAN-I-KHANA, NEW DELHI.—Saroos were replaced and shaped. More bougainvillias were planted in the corner.

8. PURANA QILA, NEW DELHI.—An area of about six acres was cleared and brought under gardening. The debris, which was heaped in the front side, was removed.

9. ARCHAEOLOGICAL AREA, QUTB, DELHI.—The Jungli Bagh was beautified with the introduction of roses and canna beds.

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[1] Information: 1 and 2, from the Director of Archaeology, Hyderabad, Andhra Pradesh; 27, from the Director of Archaeology, Rajasthan, and the rest from Chief Horticulturist and Assistant Superintending Horticulturist of the Survey.

10. RED FORT, DELHI.—The lawns in the Diwan-i-Am, Khas Mahal, Rang Mahal and Museum area were re-turfed with Calcutta grass. The fountains in the Rang Mahal were revived.

11. TOMB OF SAFDARJUNG, NEW DELHI.—Rose beds were introduced and various kinds of roses were planted. Casualties in the shrubberies were filled up.

GOA

12. CHURCH, VELHA GOA.—The experiment of bore-wells having failed, alternative arrangements were made to harness water from the shallow wells and necessary electric motors were installed. A lawn with Calcutta doob grass has been laid out in front of St. Assisi Church.

MADHYA PRADESH

13. TEMPLES AT KHAJURAHO, DISTRICT CHHATARPUR.—An area of about six acres has been re-turfed. Casualties in dot plants and roses were made good.

MAHARASHTRA

14. BIBI-KA-MAQBARA, DISTRICT AURANGABAD.—'Grow More Food' campaign was continued on a small scale in the outskirts of the garden. Plant propagational activity was intensified. Peripheral plantation with silver oaks was completed.

MYSORE

15. ALI II RAUZA, BIJAPUR, DISTRICT BIJAPUR.—The area which was formerly under 'Grow More Food' campaign has now been planted with fruit trees. A small garden-area has been extended towards the rear portion of the Anti-Famine Institute.

16. ARQUILLA, BIJAPUR.—The royal palms were planted. The lawns have been well-established.

17. ASAR MAHAL, BIJAPUR.—Revival of garden, started last year, has been completed and further extended.

18. GAGAN-MAHAL, BIJAPUR.—The pumping-set which supplied water to Gagan Mahal and Gol Gumbad has now been commissioned to supply water also to Arquilla and Asar Mahal gardens.

19. GOL GUMBAD, BIJAPUR.—Improvements like the removal of superfluous vegetation and plantation of more trees and shrubs have added to the better looks of the garden. Propagation of plants was also intensified.

20. IBRAHIM RAUZA, BIJAPUR.—The shrubberies were maintained by filling up the casualties. Several new dot plants were also introduced.

21. HOYASALESVARA TEMPLE, HALEBID, DISTRICT HASSAN.—Sinking of a bore-well proved unsuccessful. The garden is depending upon the reservoir which is also gradually getting filled up.

22. DARIA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—'Grow More Food' campaign was continued by planting two acres of paddy. Several thousands of plants have been propagated. The upper orchard has been further improved.

23. GUMBAZ GARDEN, SRIRANGAPATNA, DISTRICT MANDYA.—Since bore-wells failed to yield sufficient quantity of water, alternative arrangements have been finalized. 'Grow More Food' campaign was continued and extended with paddy cultivation.

24. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—Arrangements were made for effective and continuous supply of water by replacing the centrifugal pumps with Ejecto Jet-Pump. Gaps in the shrubberies were filled up.

ORISSA

25. LAKSHMANESVARA GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—Improve ments to the archaeological garden around the Lakshmanesvara group of temples have been effected by plantation of seasonal plants and provision of benches.

RAJASTHAN

26. DIG PALACES, DISTRICT BHARATPUR.—Many rare varieties of roses were propagated and supplied to Agra and Delhi gardens. The fountains were maintained in working order.

27. PALACE AT AMBER, JALEBI CHOWK, DISTRICT JAIPUR.—The gardens are under development on the Mughal pattern. The gardens inside the palaces were maintained.

UTTAR PRADESH

28. AKBAR'S TOMB, AGRA.—Under the 'Grow More Food' campaign 50 quintals of cereals were produced. Four new beds were introduced and planted with new varieties of roses.

29. KHAN-I-ALAM, AGRA.—Plants of different varieties were raised and the nursery was enriched by the introduction of new varieties of roses.

The existing glass-house meant for shade-loving and delicate plants was renovated. The need for sweet water was met by the installation of an electrically-run pumping-set in one of the old wells situated on the bank of the river Yamuna.

For supplying water to the fountains at the Taj, a deep tube-well was bored at the lower Khan-i-Alam area and a turbine pumping-set was installed.

30. TAJ MAHAL, AGRA.—The fore-court lawns were improved by re-turfing.

ARCHAEOLOGICAL GARDENS

31. EXCAVATED REMAINS, KUSHINAGAR, DISTRICT DEORIA.—Re-turfing of the old lawns was undertaken.

32. SAHET MAHET, SRAVASTI, DISTRICT GONDA.—The work of laying out an orna mental garden around this important Buddhist site was started. The area was fenced and a network of pipelines laid out for proper irrigation. One of the old wells within the archaeological area was bored and an electric pumping set installed. The power line connection from the U. P. Electricity Board is awaited.

33. RESIDENCY BUILDINGS, LUCKNOW.—Tube-well nos. 2-3 were interconnected with pipeline for better supply of water.

34. EXCAVATED REMAINS AND ARCHAEOLOGICAL MUSEUM, SARNATH, DISTRICT VARANASI.—The shabby old lawns were re-turfed to restore the beauty of the garden.

XII. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. INDIAN ARCHAEOLOGY—A REVIEW.—The number for 1968-69 is in advanced stage of printing.

2. EPIGRAPHIA INDICA—ARABIC AND PERSIAN SUPPLEMENT.—The number for 1969 is in advanced stage of printing.

3. GUIDE BOOKS.—*Khajuraho* (third edition) by K. Deva, *Nalanda* (sixth edition) by A. Ghosh, and *Dig* (second edition) by M. C. Joshi are in advanced stage of printing. *Amaravati* by H. Sarkar and S. P. Nainar, and *Nagarjunakonda* (second edition) by H. Sarkar and B. N. Misra have been sent to the press.

4. PICTURE POSTCARDS.—The following picture postcard sets were reprinted: Kanheri, Modhera and Patan, Seringapatam, Ajmer and Pushkar, Lucknow, Nagarjuna konda, Khajuraho, Hampi, Ajanta, Ellora, Bijapur, Elephanta, Sanchi, Belur, Mandu, Badami, Hanamkonda, Warangal and Palampet, Aurangabad and Daulatabad, Gwalior and Alampur.

5. COLOUR PICTURE POSTCARDS.—Picture postcards of Delhi and Agra monuments were introduced.

OTHER PUBLICATIONS

ANDHRA PRADESH.—The Director of Archaeology and Museums, Andhra Pradesh, brought out the *Report on Epigraphy 1966* under Epigraphy Series and *Select Andhra Temples, Studies in the Medieval Deccan History* and *Copper Plate Inscriptions in the State Museum, Hyderabad,* vol. II, under Archaeological Series.

GUJARAT.—The Director of Archaeology, Government of Gujarat, brought out *The Maitraka and the Saindhava Temples of Gujarat* by J. M. Nanavati and M. A. Dhaky.

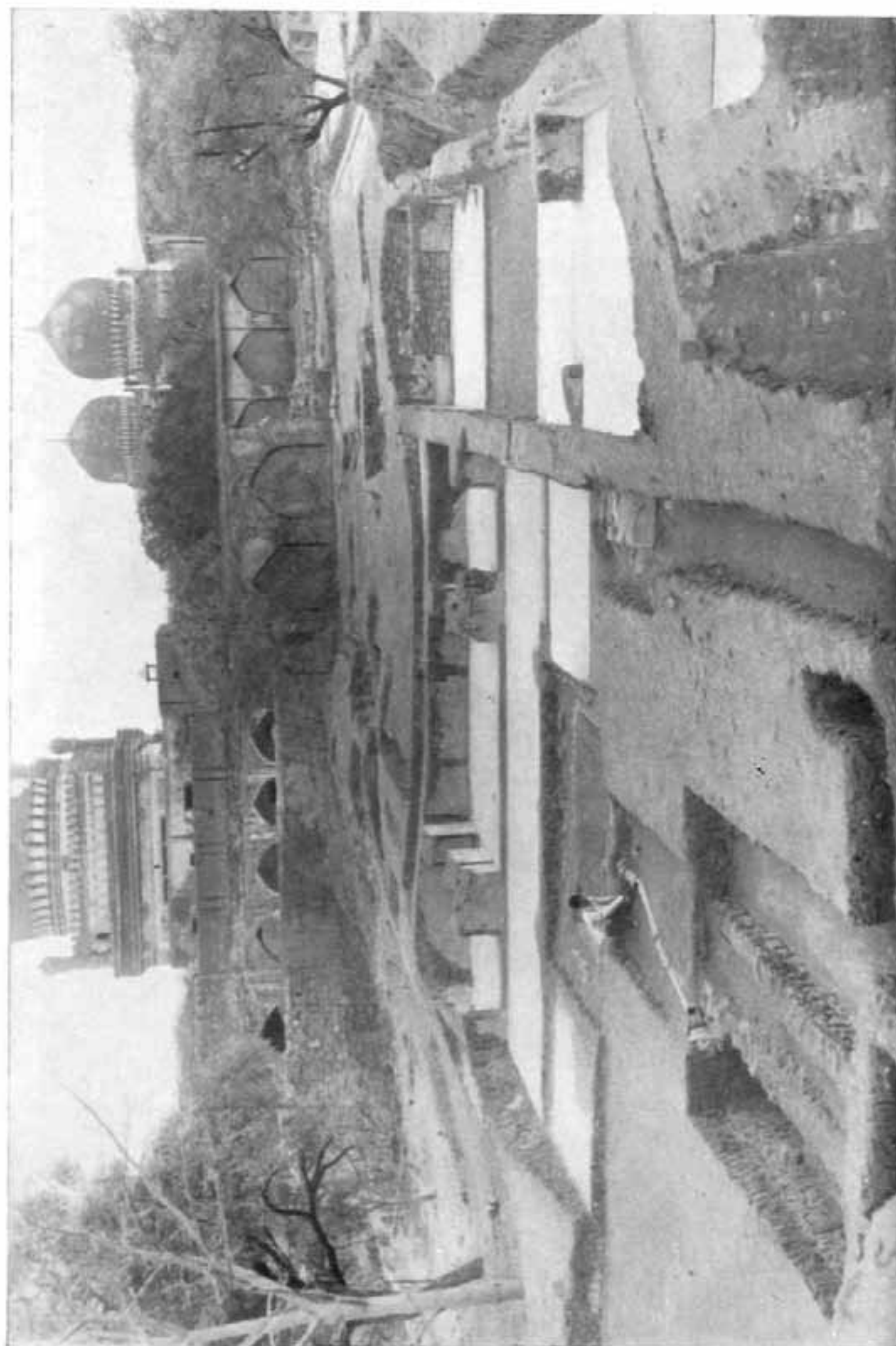
MAHARASHTRA.—The Director of Archaeology and Museums, Maharashtra State, brought out the following publications: (i) *Catalogue of Coins in the Central Museum, Nagpur, Coins of the Mughals Emperors,* Part II; (ii) *Kolhapur Museum Guide-book,* in Marathi; and (iii) folders on the Central Museum, Nagpur, Kolhapur Museum, Kolhapur, Sri Bhavani Museum, Aundh, and Shri Chhatrapati Shivaji Maharaj Museum, Satara.

MYSORE.—The Kannada Research Institute, Dharwar, published: (i) *A History of Karnataka,* Ed. by P. B. Desai, and (ii) *Some Problems regarding the Kushanas* by Dr. D. C. Sircar.

ORISSA.—The Director of Cultural Affairs, Orissa, published *The Orissa Historical Research Journal*, vol. XV, nos. 1 & 2, while nos. 3 & 4 of the *Journal* and *Descriptive Catalogue of Dharmasastra,* ed. by N. Misra have been printed off.

RAJASTHAN.—The Director of Archaeology and Museums, Rajasthan State, published *The Researcher*, Bulletin of the Department, vols. X-XI containing, besides various research articles, an exhaustive bibliography of the published Arabic and Persian Inscriptions of Rajasthan by Dr. Z. A. Desai.

TAMIL NADU.—The Tamil Nadu State Department of Archaeology, published: (i) *Damilica*, Journal of the Department; (ii) *A Bibliography on Indian Megaliths* by K. S. Rama-chandran; and (iii) guides to Thirumalai Naick's Palace, Madurai and Aracallur inscription.



Golconda : general view of the excavation with the Qutb Shahi mosque in the background. *See, p. 1*

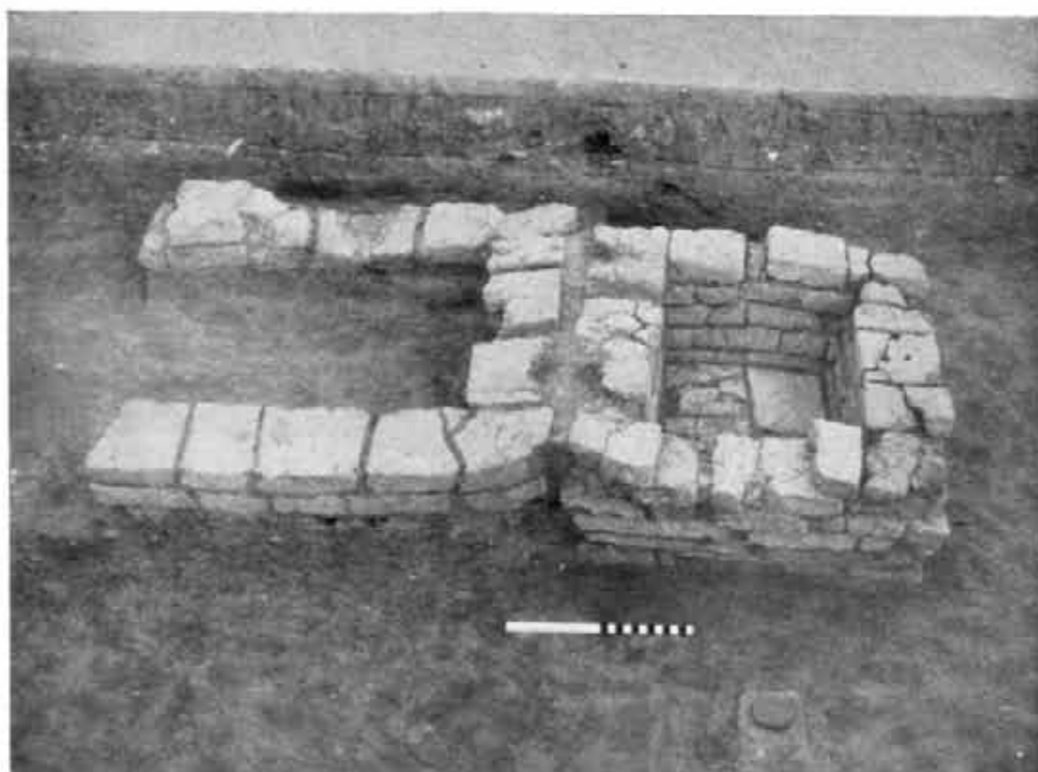


A

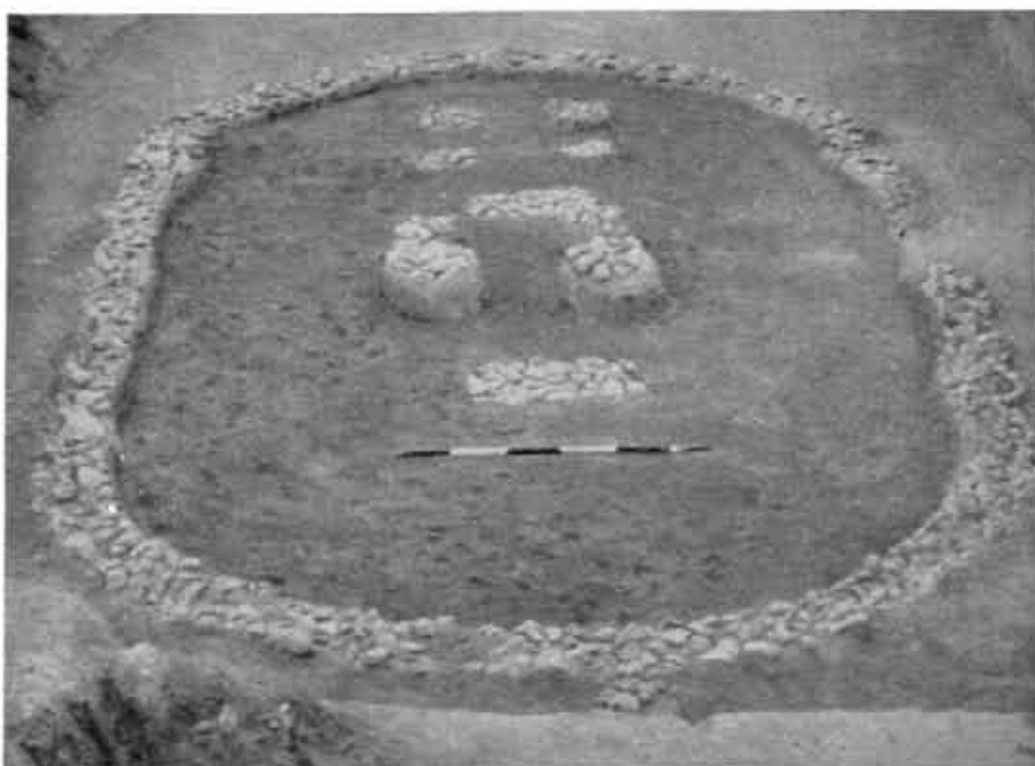


B

Golconda : A, *oblong cistern covered by granite slab* ; *and* B, *terracotta elephant provided with shallow cups all over the body for lighting wicks.* *See p. 1*



A



B

Peddabankur : A, *baked brick cistern; and* B, *oval-shaped basement of a shrine.* *See p. 2*



A



B



C



D

Ambari : images of A, *Surya;* B, *Ganga;* C, *Vishnu; and* D, *ten-armed Siva.* *See p. 4*



A

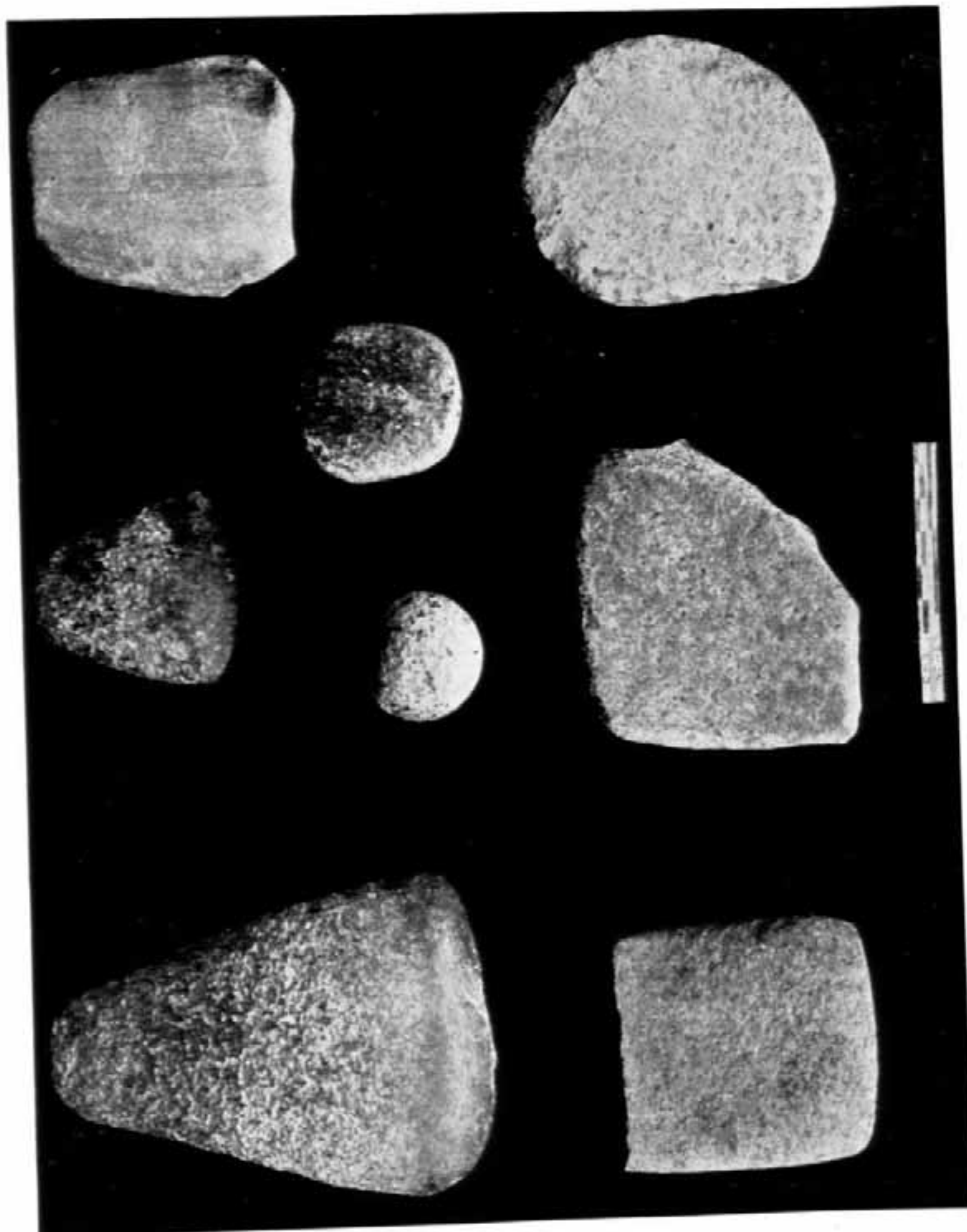


B

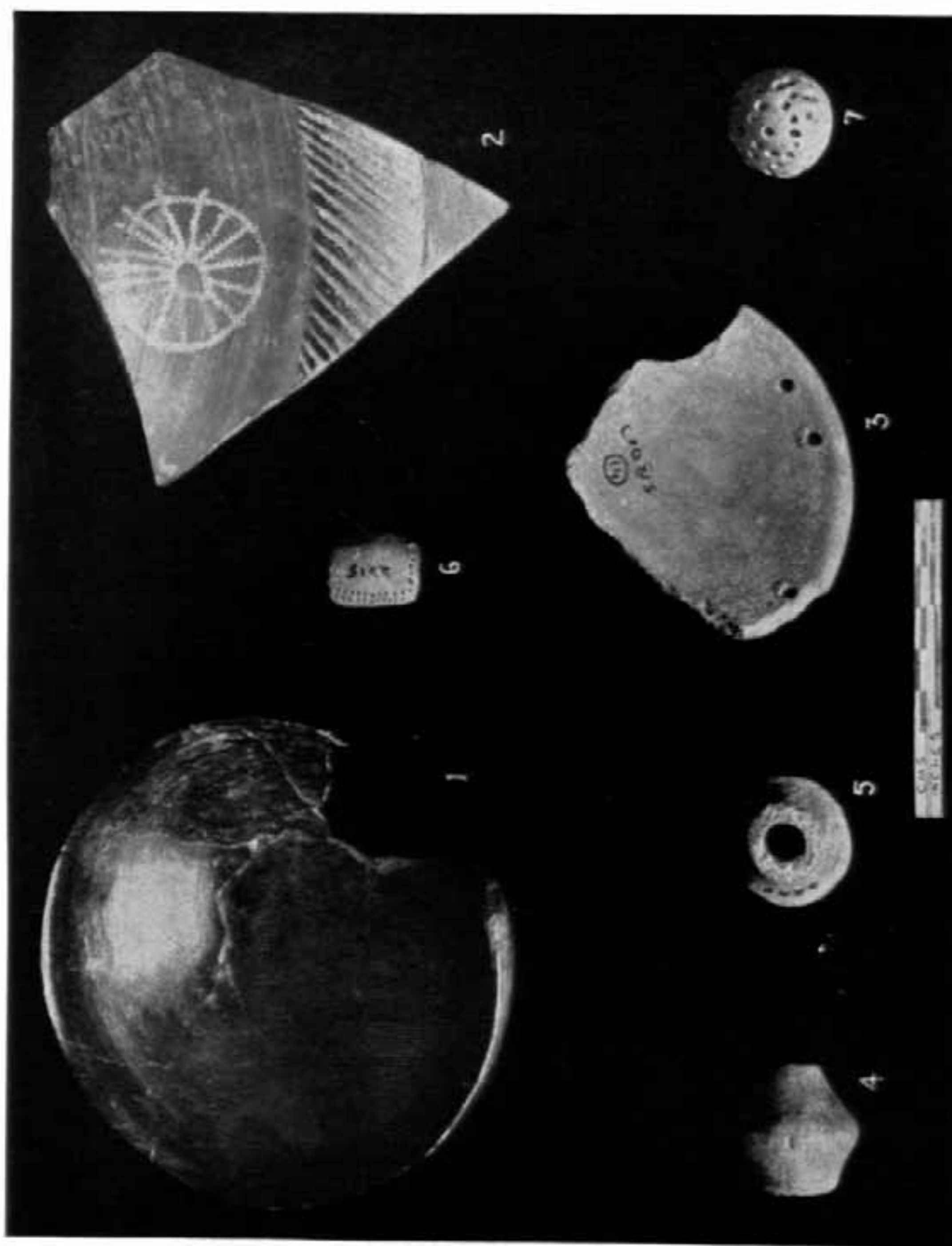
Champa : A, *terracotta figurines, Period I*; B, *miscellaneous objects, Period II*. *See p. 5*



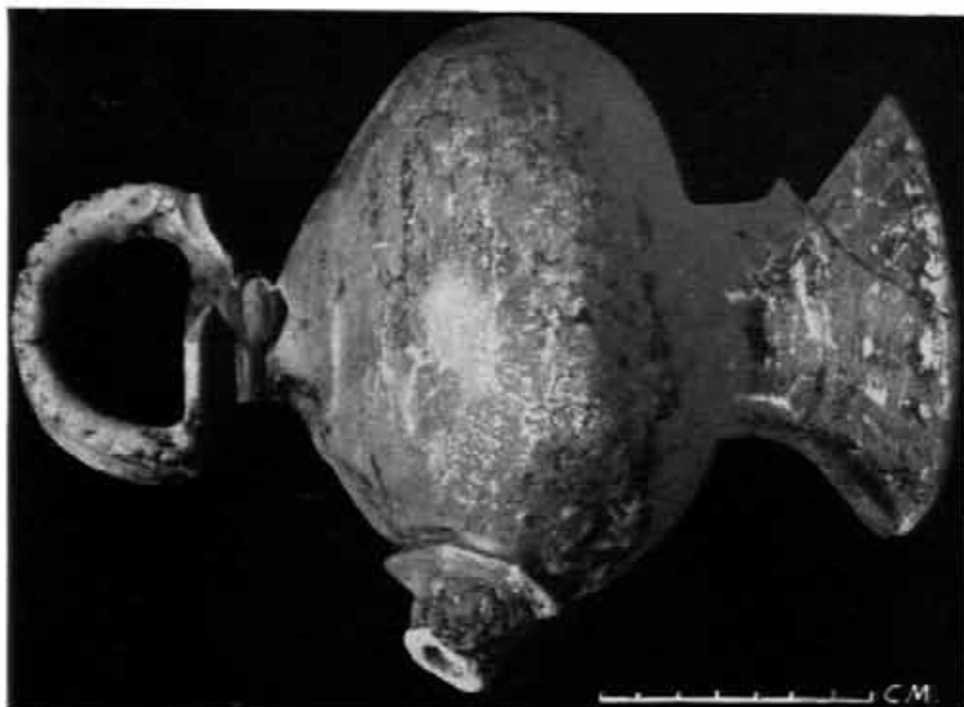
Chirand : bone objects, Period I. *See p. 6*



Chirand : stone objects, Period I. *See p. 6*



Chirand : pottery and other terracotta objects, Period I. *See p. 6*

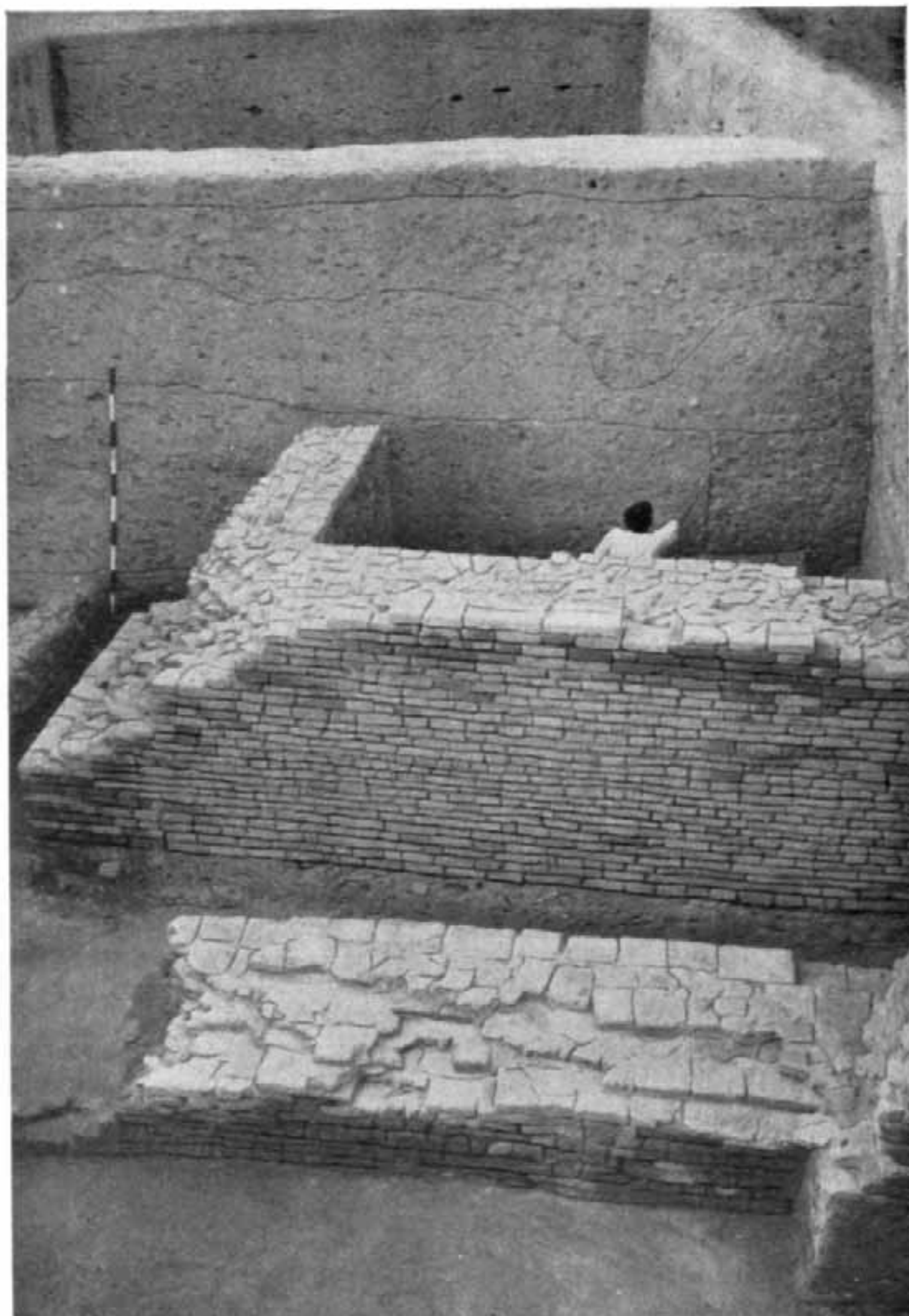


B



A

Chirand : A, *terracotta mask, Period III; and* B, *kamandalu in grey ware.* *See p. 7*



Chirand : structures of Period IV. *See p. 7*



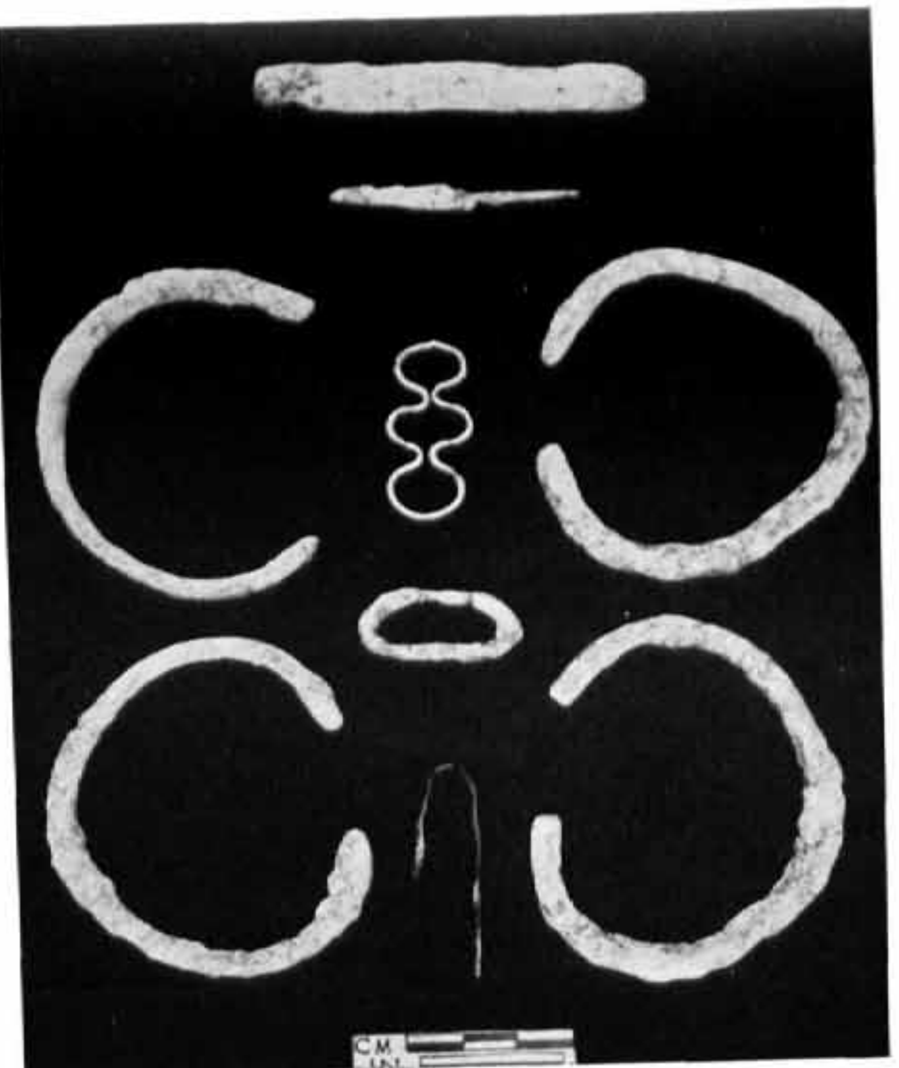
Chirand : miscellaneous objects. *See p. 7*



Chirand : stone image of Tara. See p. 7



A



B

Chandigarh : A, *section of the excavated trench; and* B, *copper objects.* *See pp. 7 and 8*



A

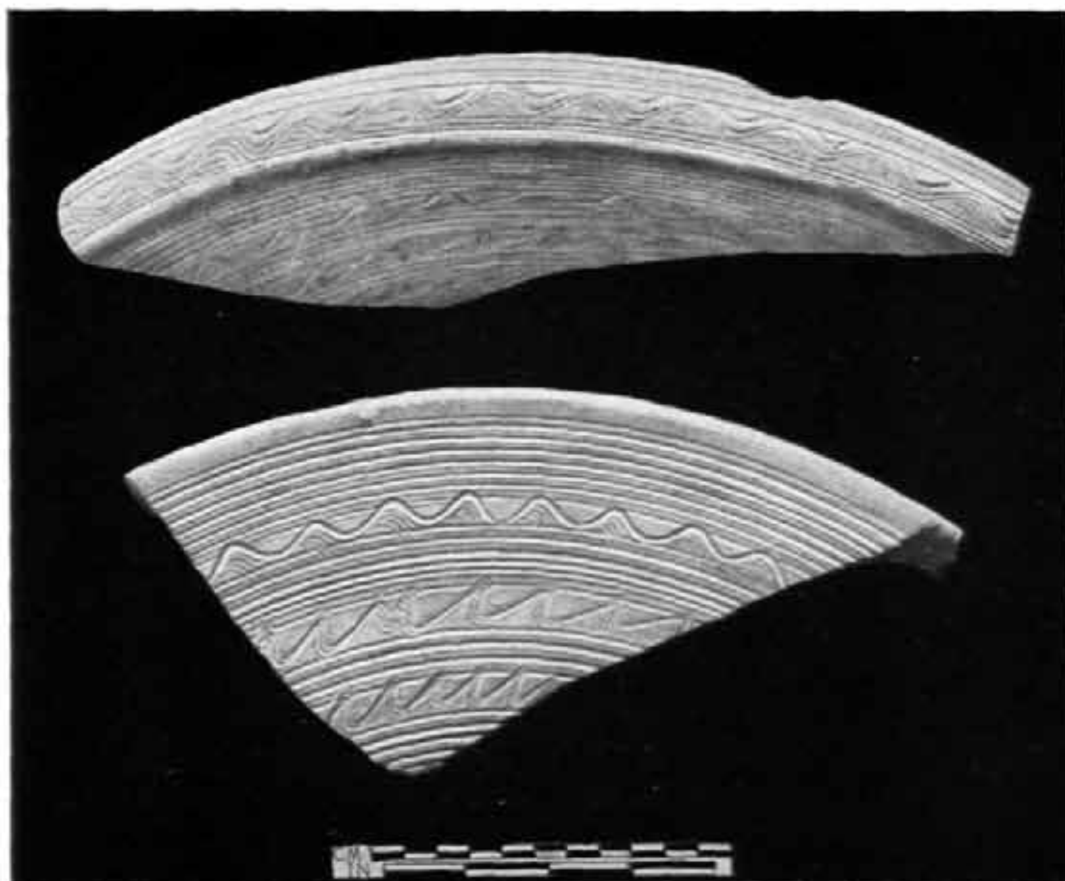


B

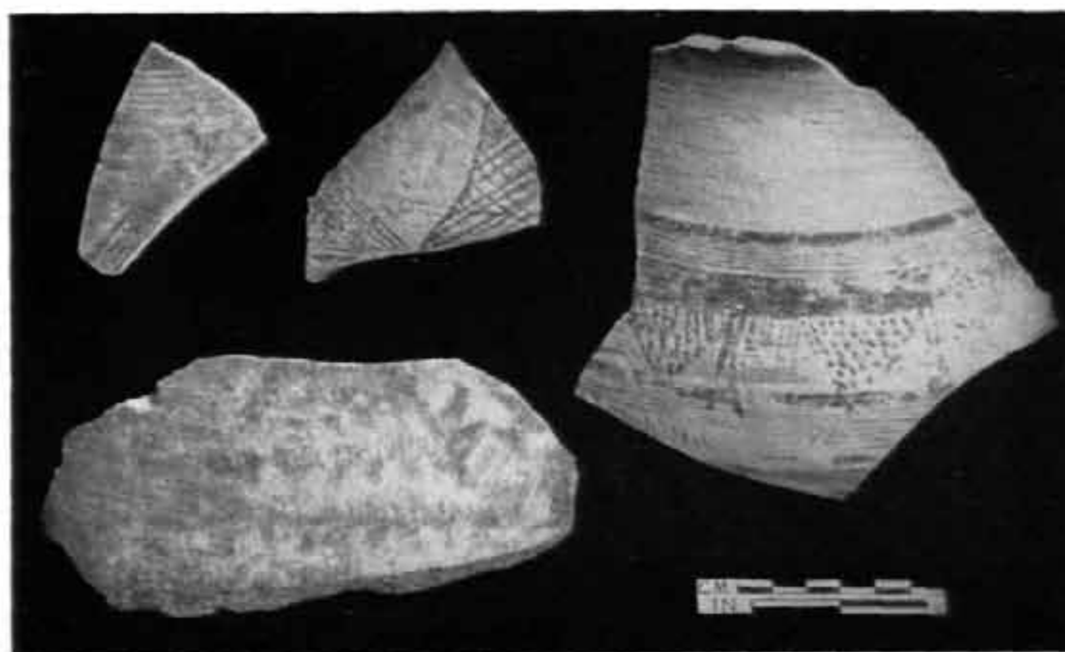


C

Chandigarh : inscribed Harappan potsherds. *See pp. 7 and 8*

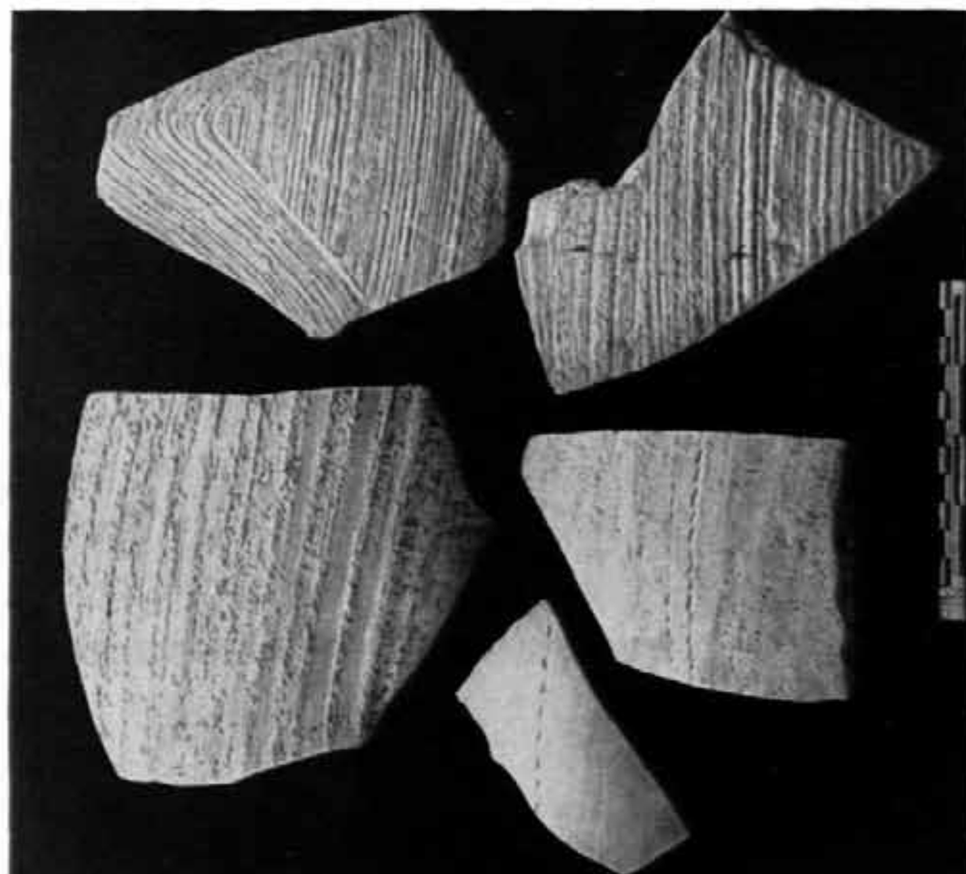


A

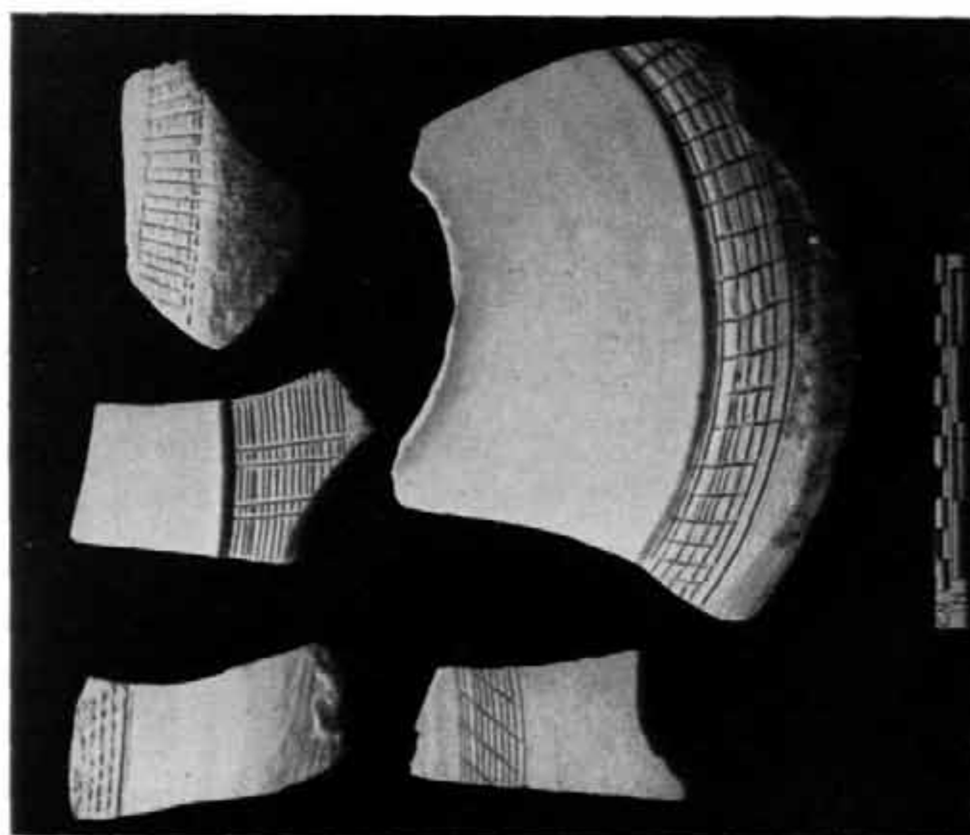


B

Chandigarh : A, *sherds bearing incised decoration of pre-Harappan Kalibangan tradition;* and B, *painted pottery of Bara tradition*. *See p. 7*



B

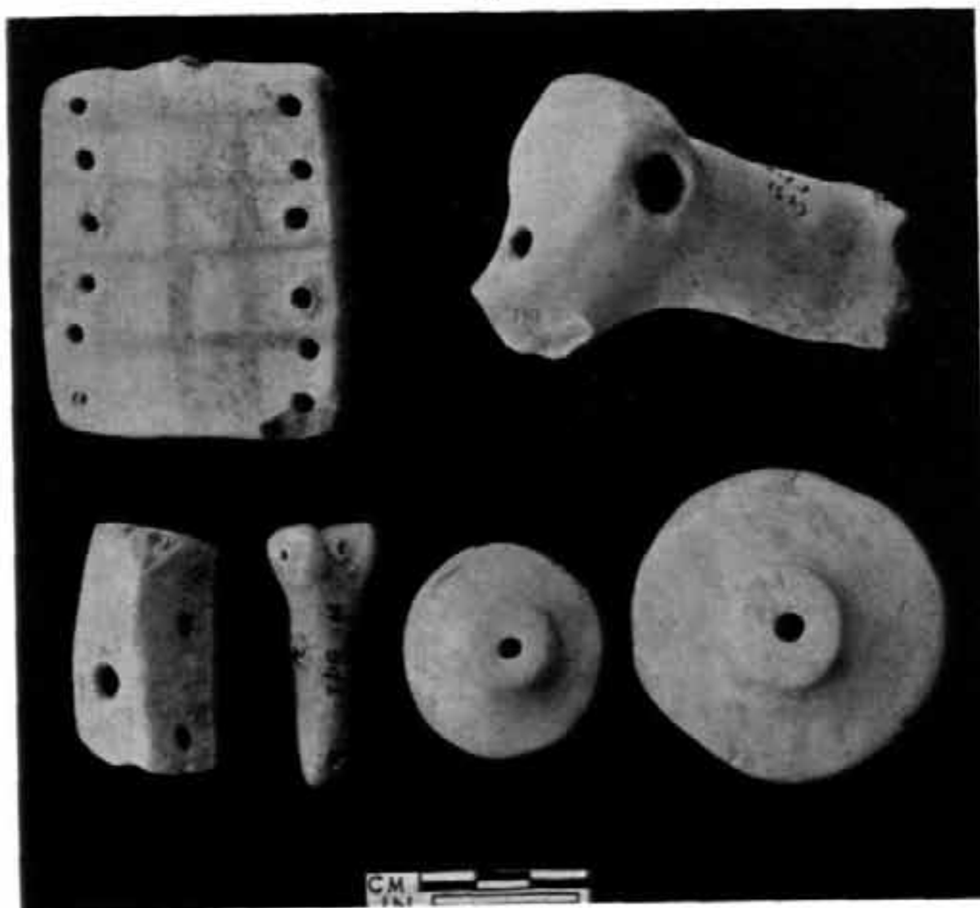


A

Chandigarh : *incised decoration on pottery.* *See p. 8*

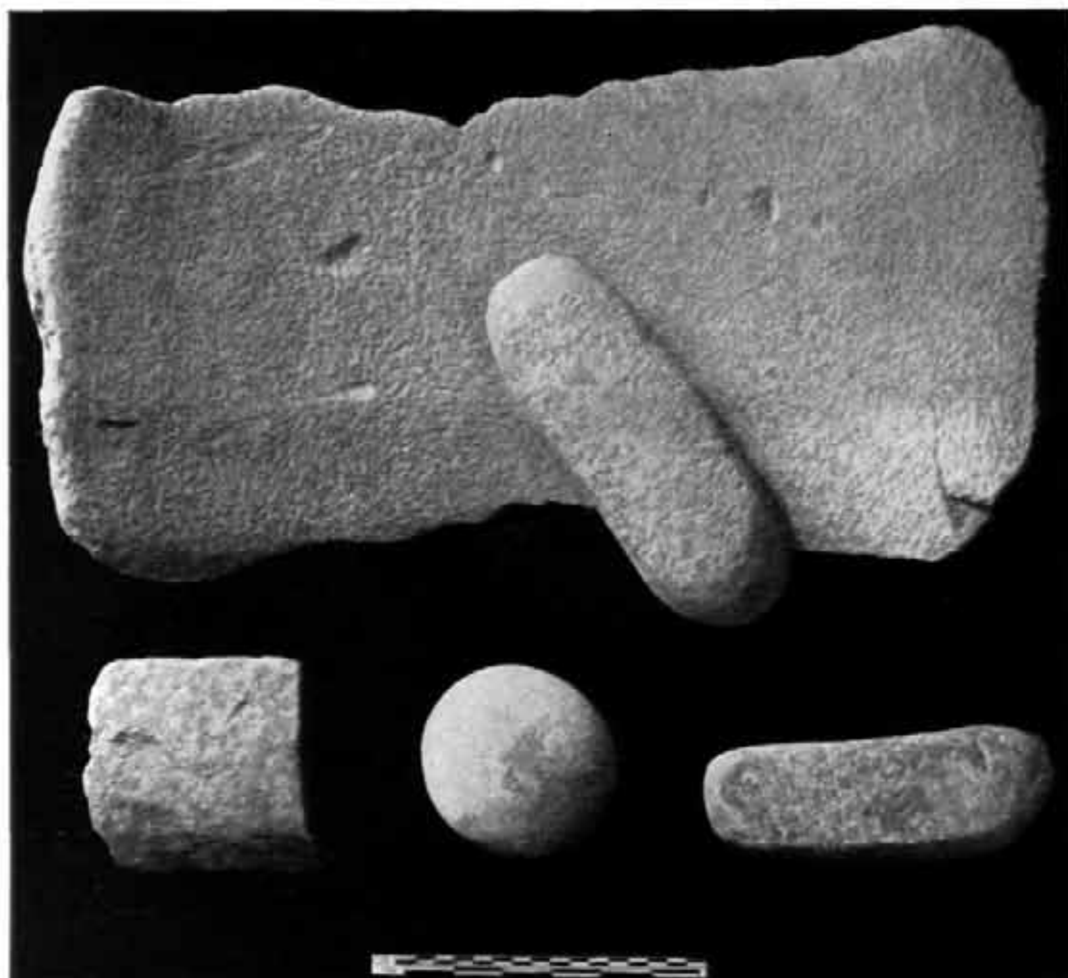


A

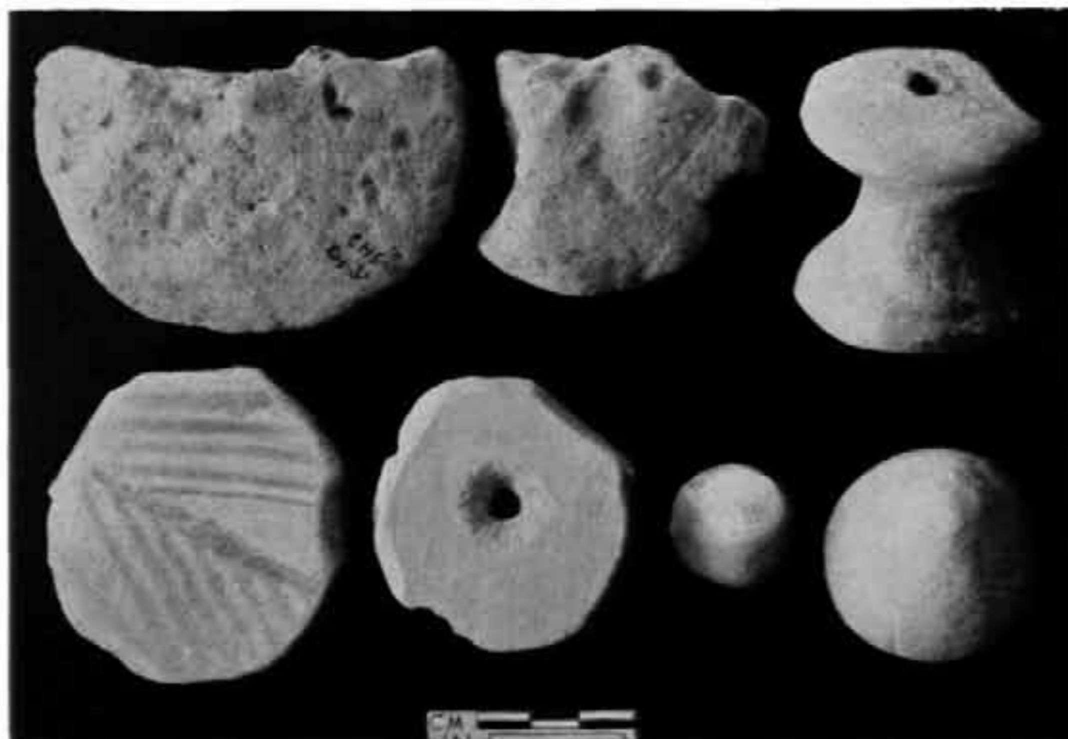


B

Chandigarh: A, *terracotta bull figurines; and* B, *miscellaneous terracotta objects.* *See p.8*



A



B

Chandigarh: A, *saddle quern, pestle and sling-ball; and* B, *terracotta objects.* *See p. 8*



B



A

Purana Qila, New Delhi: A, *series of hearths, Maurya Period; and* B, *baked brick drain, Maurya Period.* *See p. 8*



A



B

Purana Qila, New Delhi: A, *daub-and-wattle structure, Maurya Period; and* B, *mud-brick structure, Sunga Period.* *See pp. 8 and 10*



Purana Qila, New Delhi: structures of the Kushan (foreground) and Gupta (background) Periods. *See p. 10*



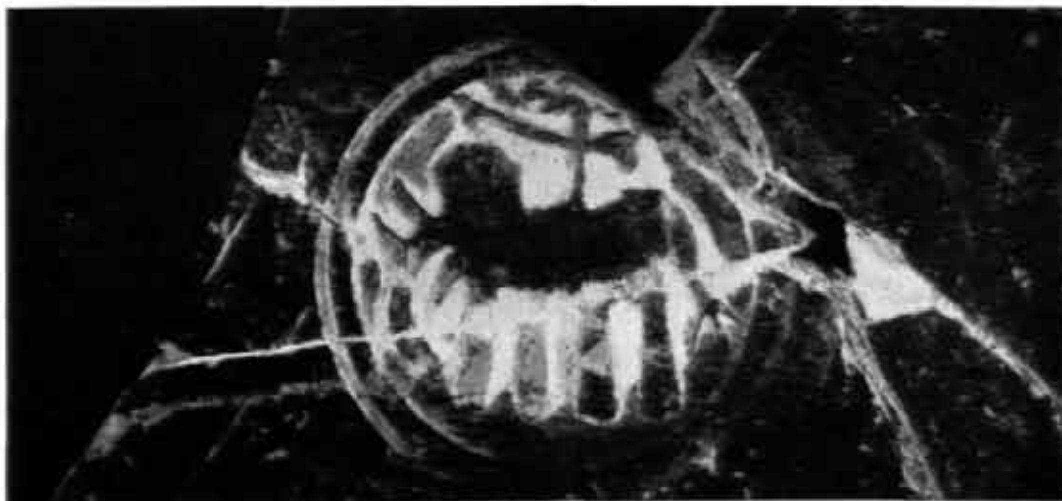
Purana Qila, New Delhi: structure of the Gupta Period. *See p. 10*



A

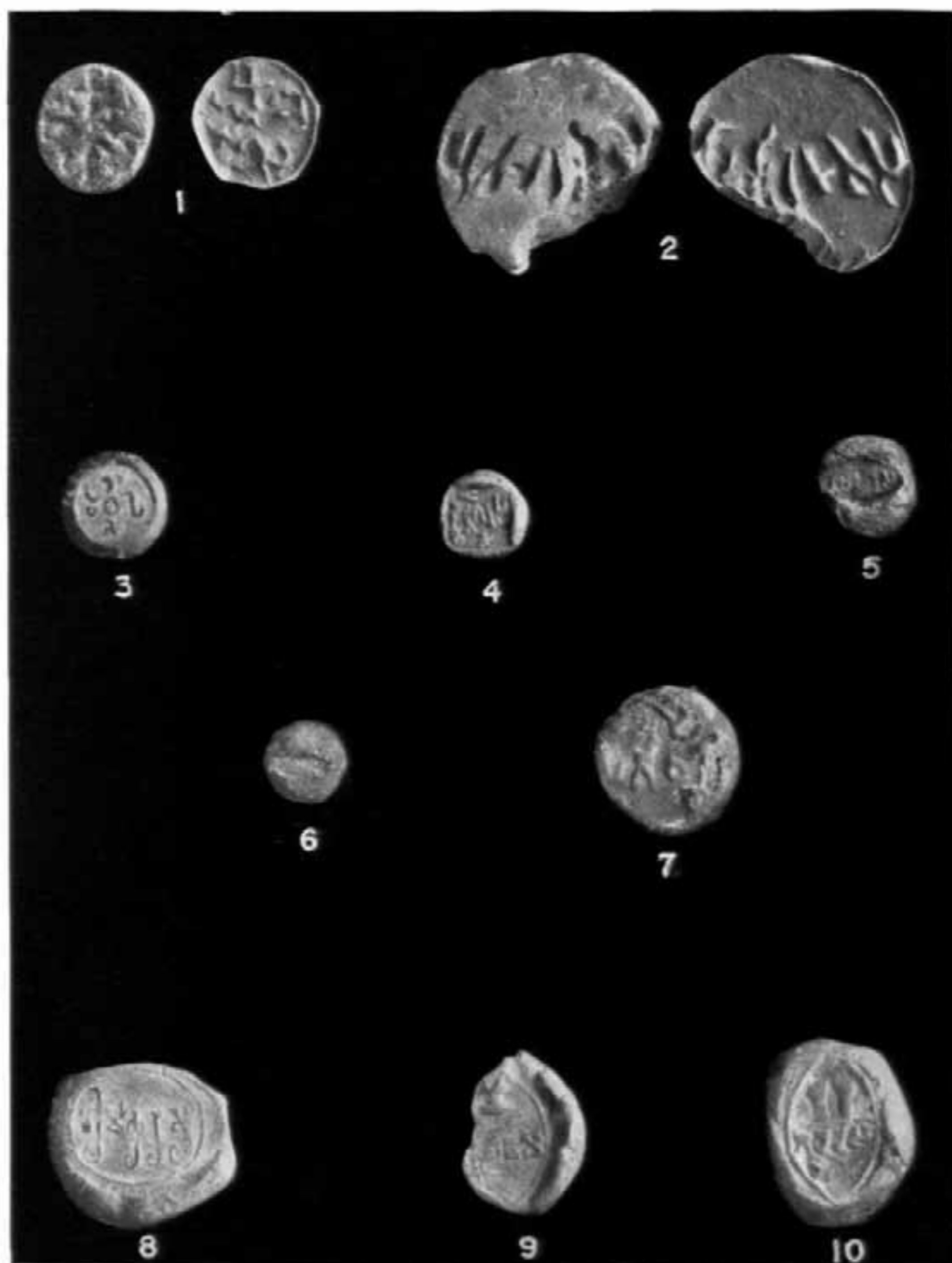


B



C

Purana Qila, New Delhi: A, *sculptured ring-stone with two inscribed letters on the reverse, Maurya Period;* B, *terracotta human figurines, Maurya Period; and* C, *an N.B.P. Ware sherd with stamped elephant figure.* *See p. 8*



Purana Qila, New Delhi: seals and sealings. *See pp. 8 and 10*



A





B C

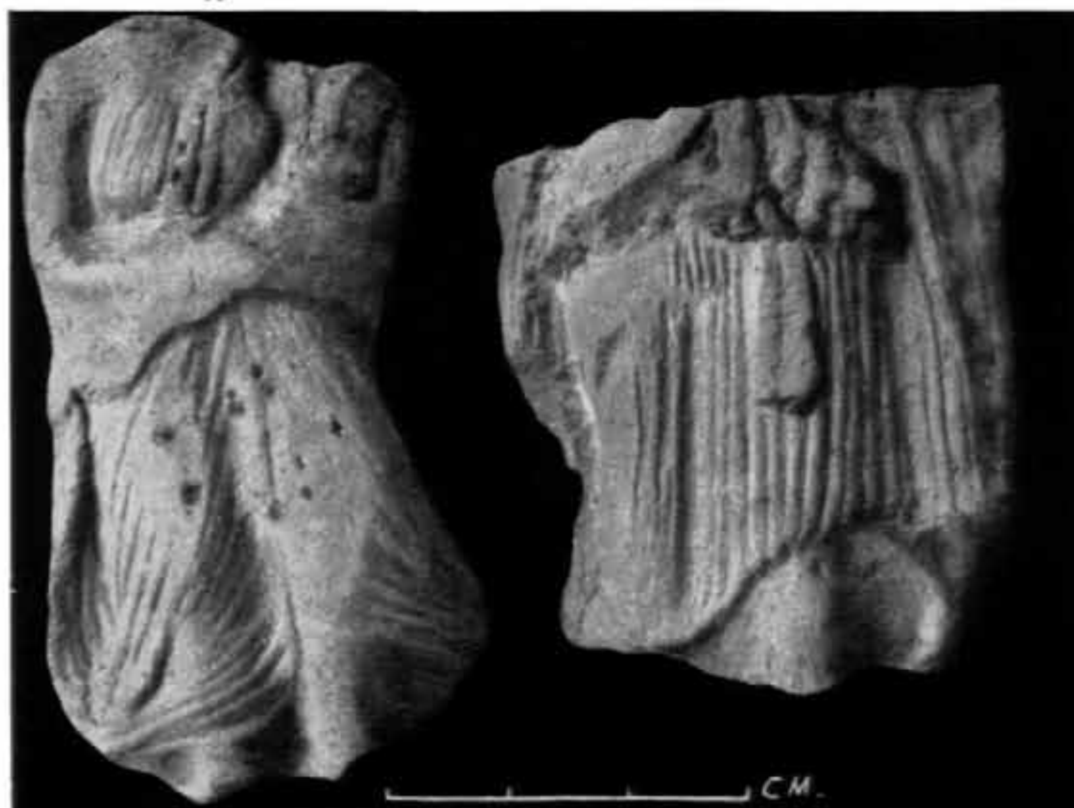
Purana Qila, New Delhi: A, *terracotta plaques, Sunga Period*; B, *terracotta lute-player, Sunga Period; and* C, *anthropomorphic pot, Sunga Period.* *See p. 10*



A



B

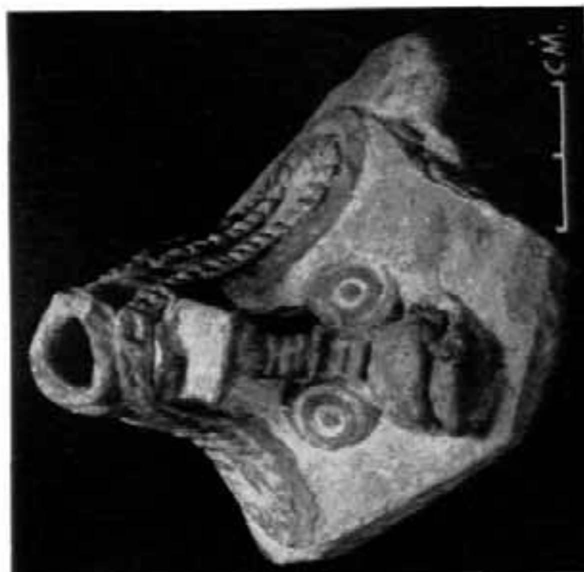


C

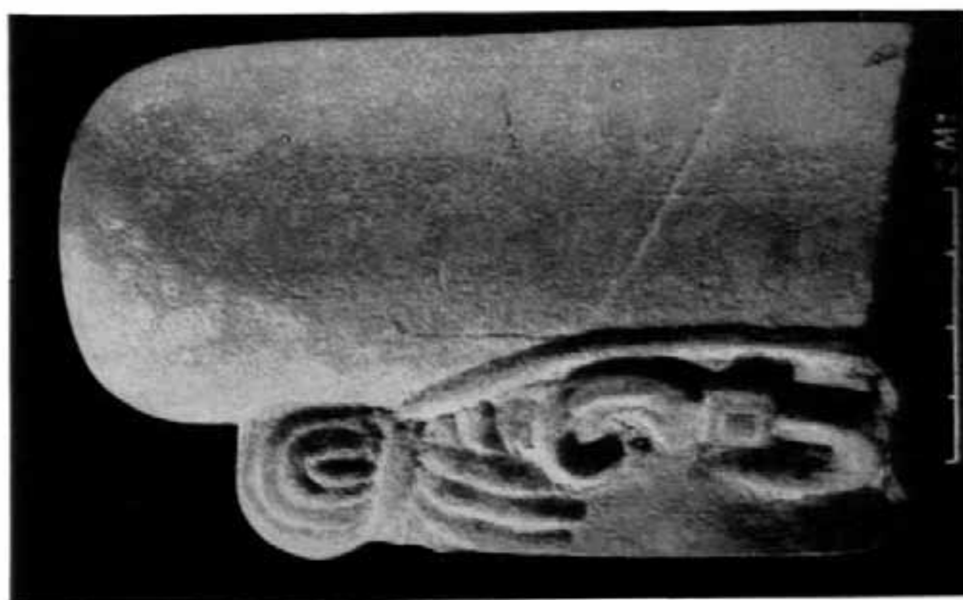
Purana Qila, New Delhi: A, *terracotta human head, Saka-Kushan Period;* B, *terracotta plaque showing three elephant-riders, Saka-Kushan Period; and* C, *terracotta figurines, Gupta Period.* *See p. 10*



B



C



A

Purana Qila, New Delhi: A, *mukha-linga in sandstone, Gupta Period*; B, *gold-plated coin of the archer-type with the legend 'Sri Vikrama', Gupta Period*; *and* C, *pranala-spout, Post-Gupta Period.* *See p. 10*



Purana Qila, New Delhi: pot and its contents, Rajput Period. *See p. 11*

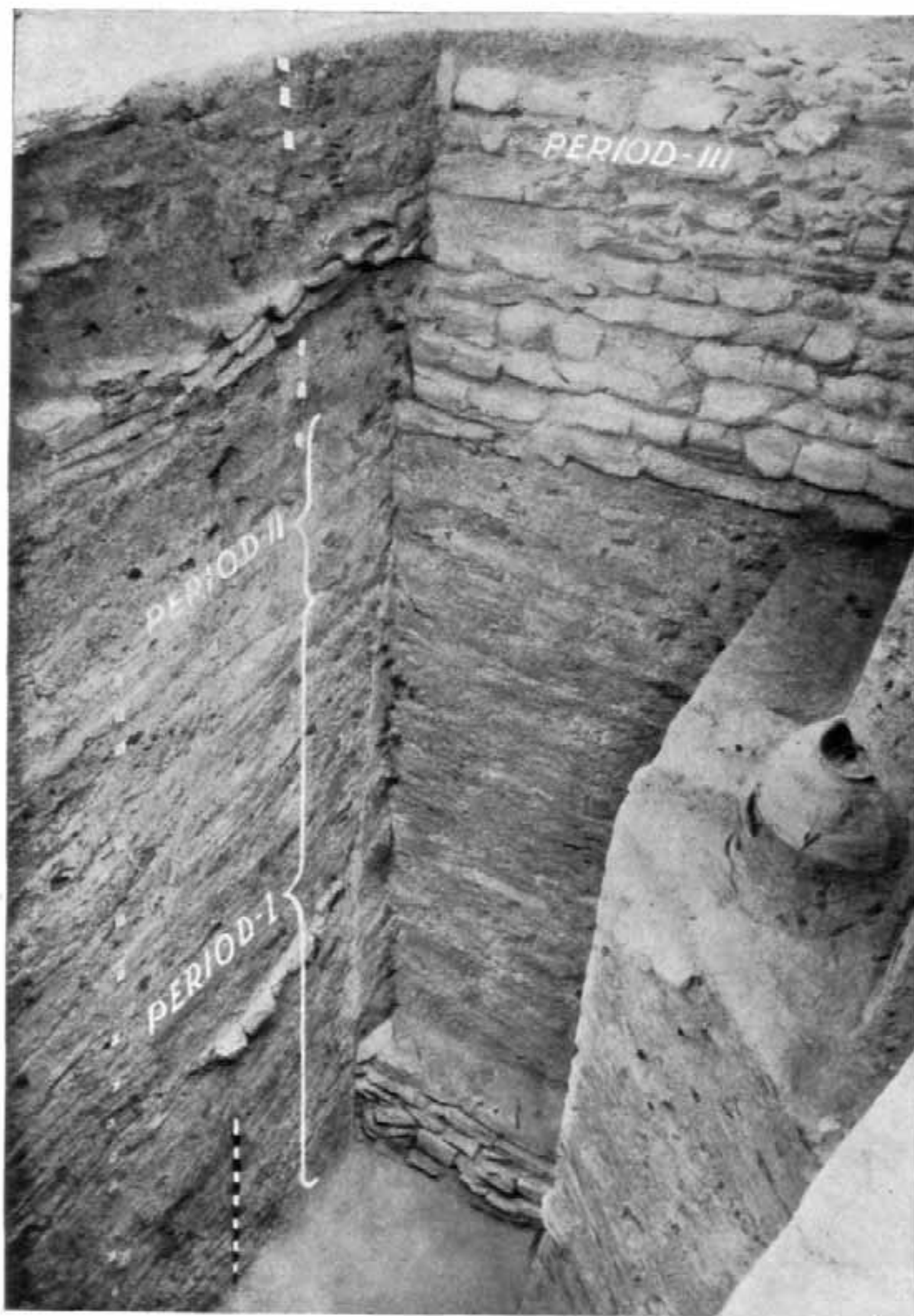


B



A

Purana Qila, New Delhi: A, *Vishnu figure in sandstone, Rajput Period;* and B, *terracotta human head, Mughal Period.* *See p. 11*



Surkotada: citadel fortification-wall of successive periods. *See p. 13*



Surkotada: painted pottery, Period I. *See p. 13*



A



B

Surkotada: A, fortification-wall on the western side of the citadel, Period III; and B, fortification-wall with rectangular bastion of residential area, Period III. *See p. 14*

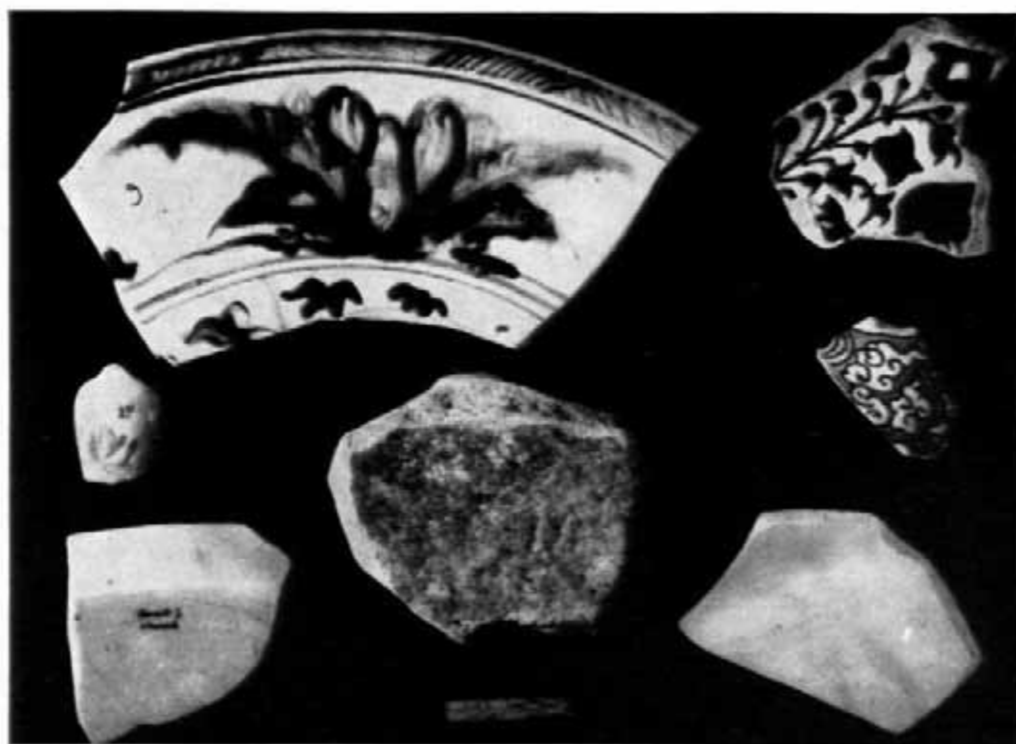
Champaner: Sanskrit inscription on a step-well. *See p. 15*





A B

Champaner: painted decoration on the walls of a structure. *See p. 15*



A

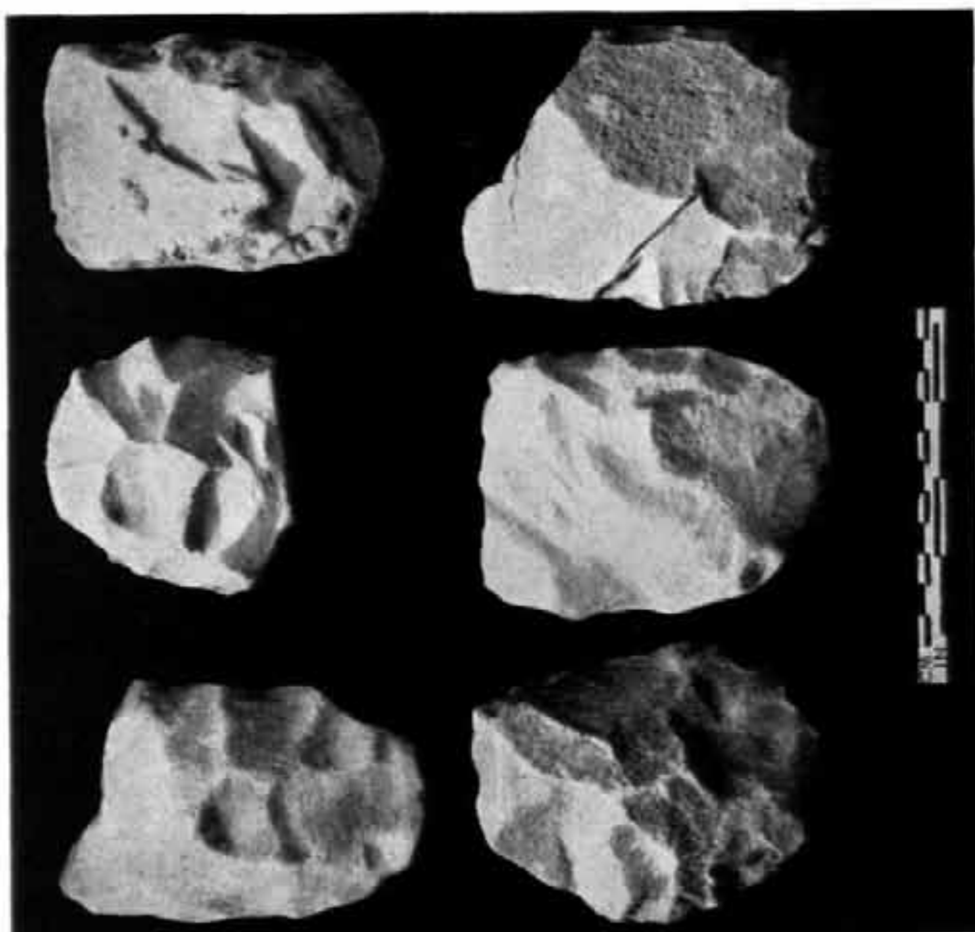


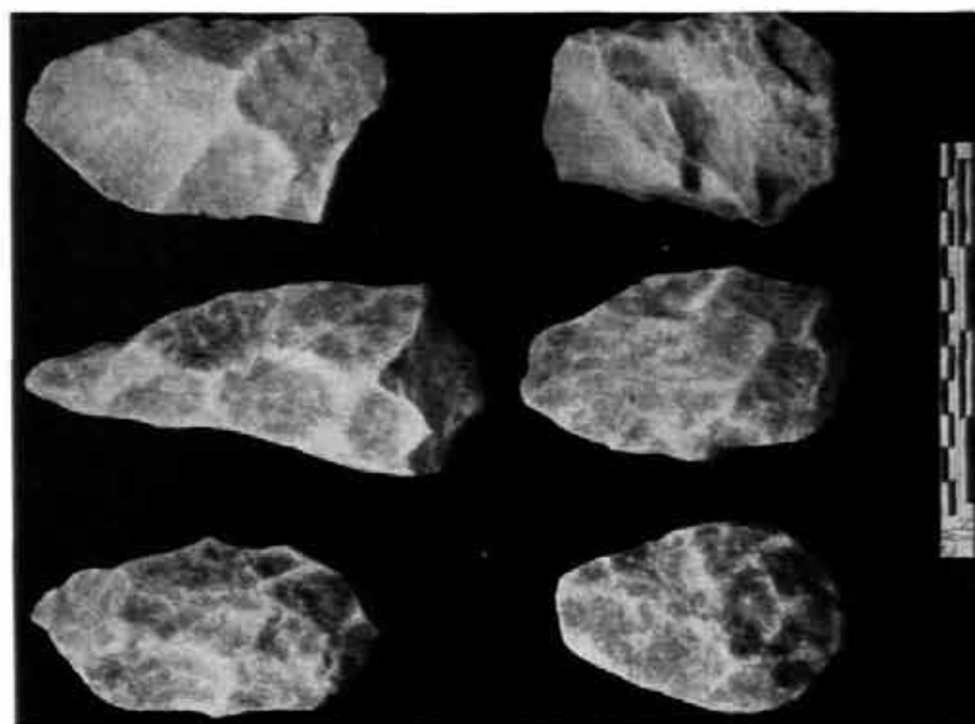
B



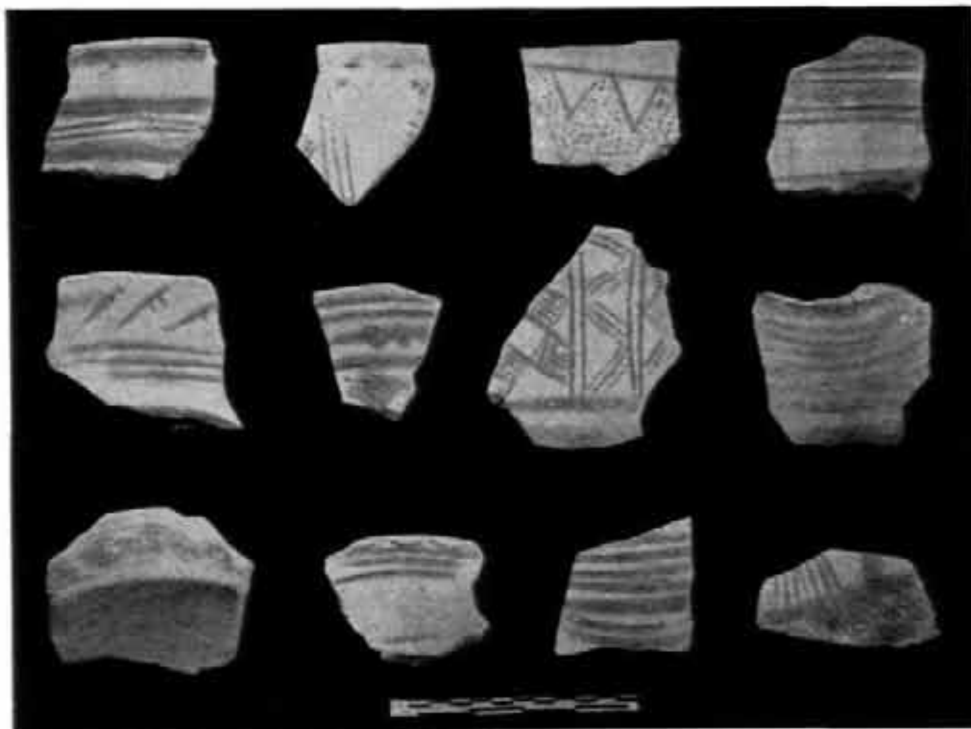
C

Champaner: A, *Chinese procelain pieces;* B *and* C, *Chinese procelain pieces bearings inscriptions in Nagari.* *See p. 15*

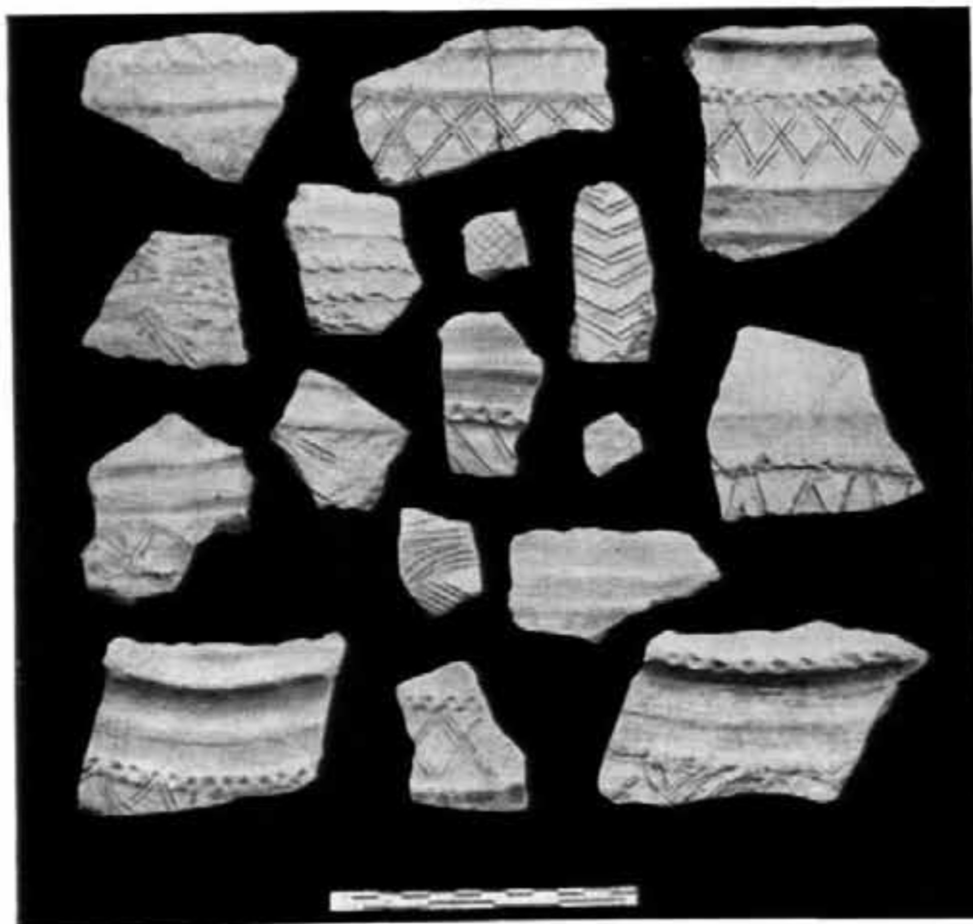

B


A

Patalpani: Early Stone Age tools. *See p. 19*

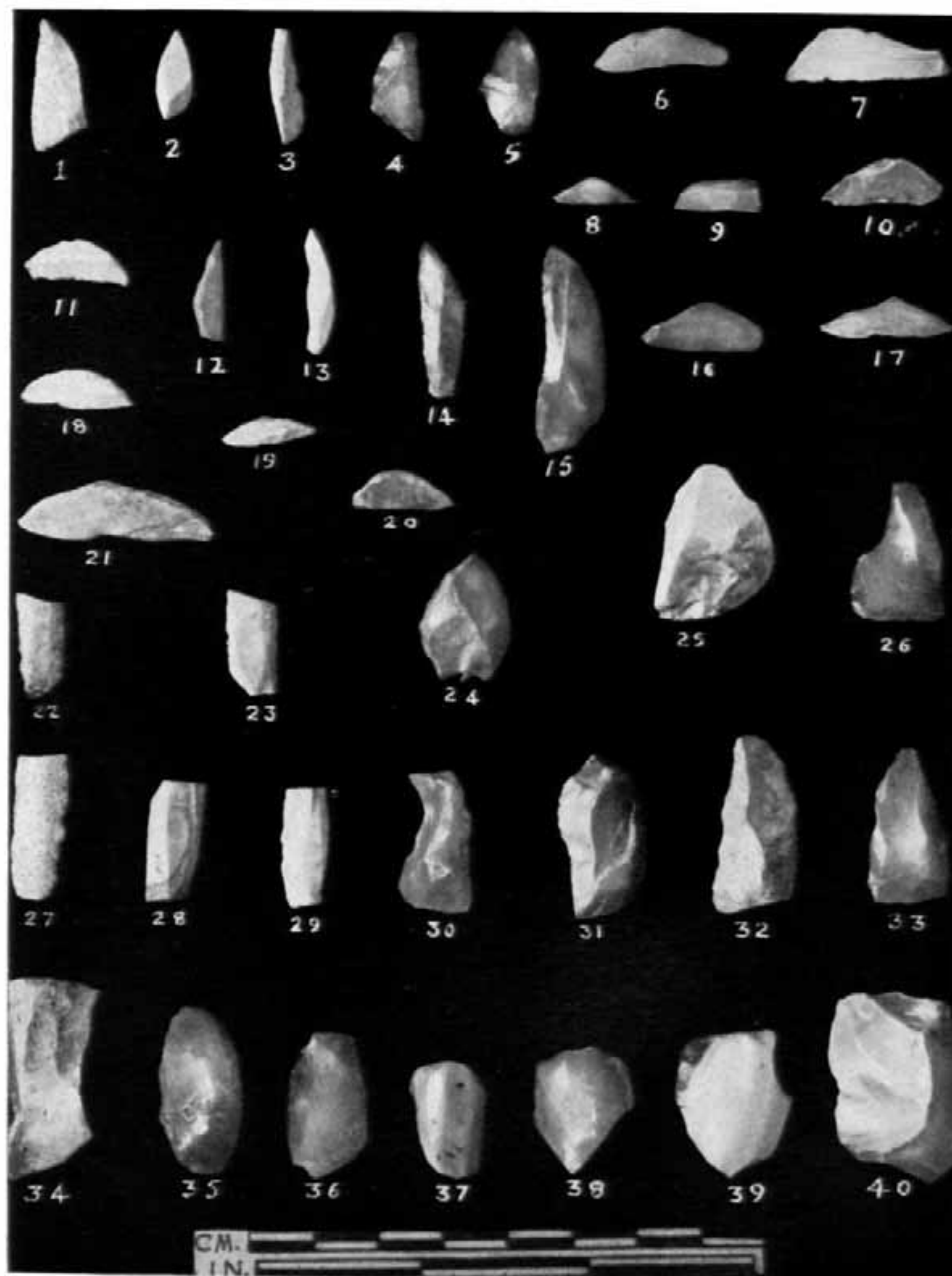


A

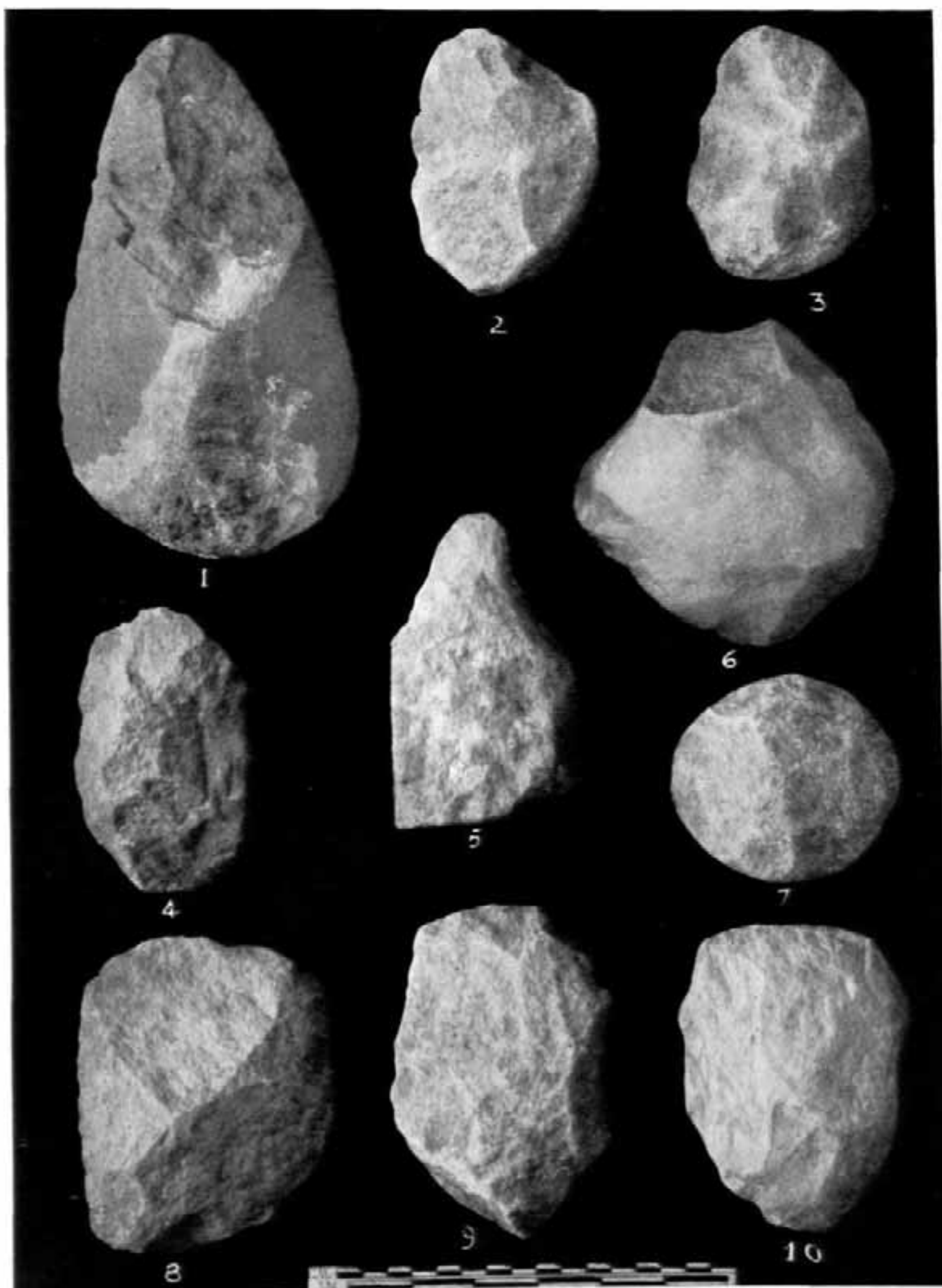


B

Lohagal: A, *painted pottery, chalcolithic; and* B, *incised decoration on pottery.* *See p. 19*



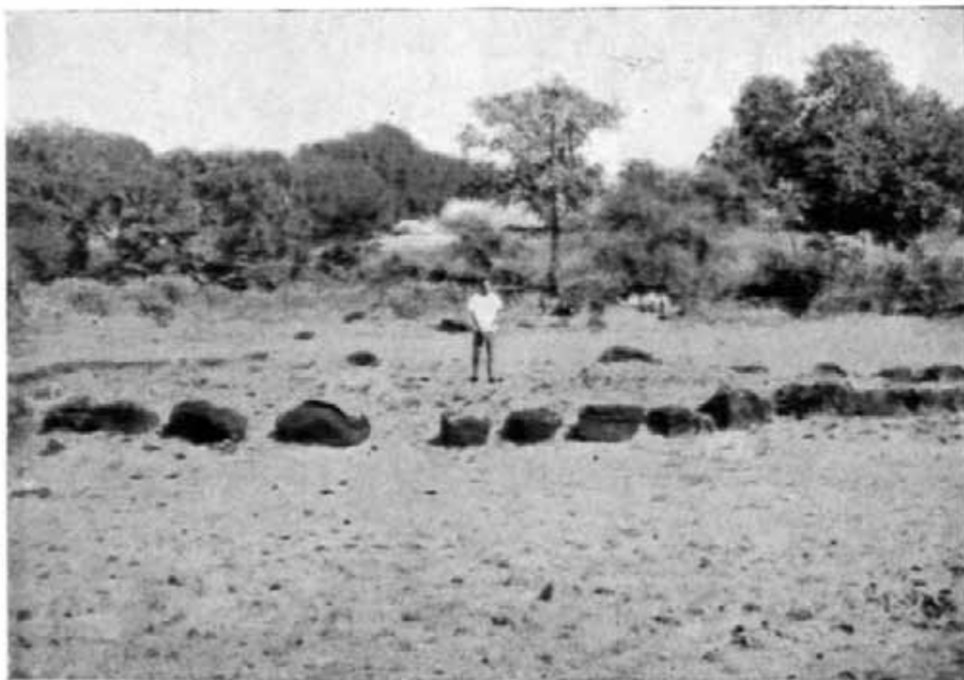
Microliths from Taluk Garhchiroli, District Chandrapur, Madhya Pradesh. *See p. 22*



Early Stone Age tools from Taluk Warora, District Chandrapur, Madhya Pradesh. *See p. 22*

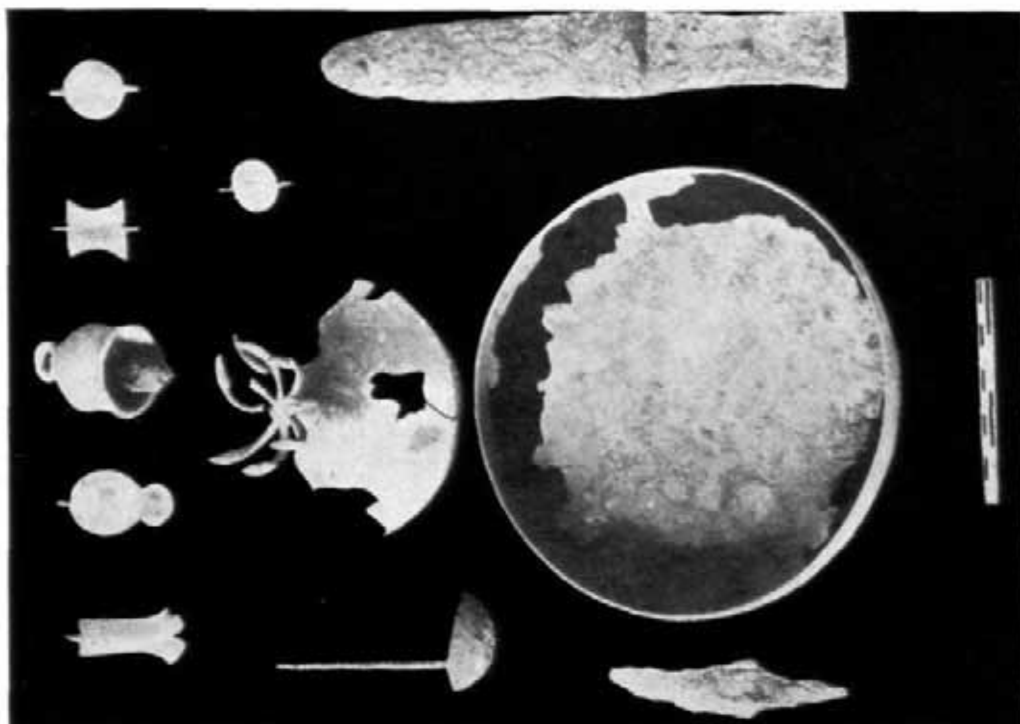


A

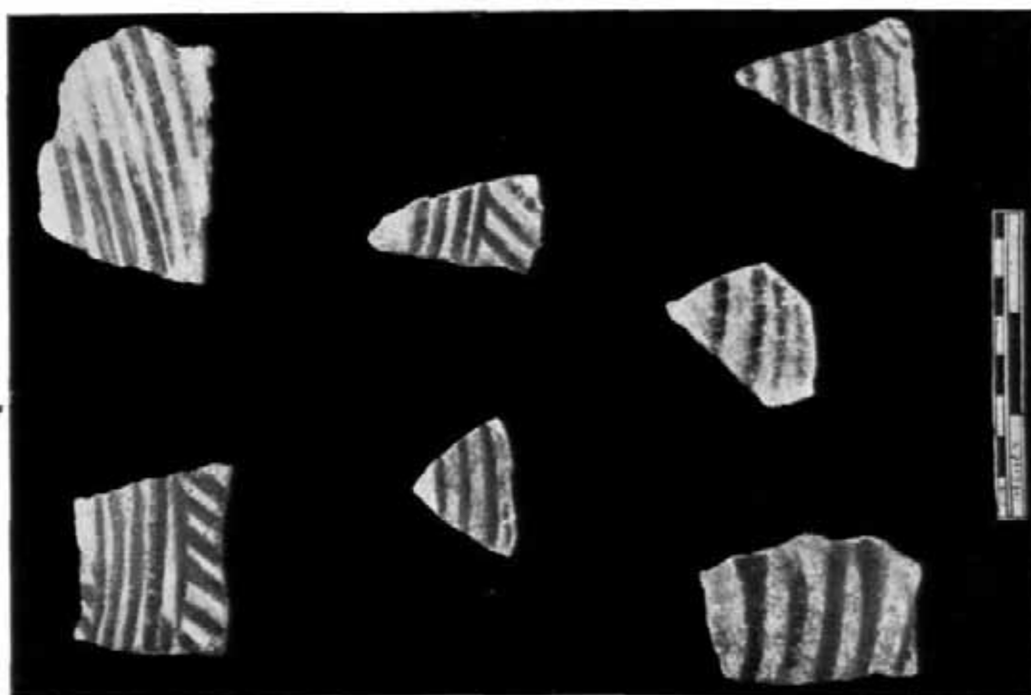


B

A. *Chandala forest, Mandhal: Buddhist caves with second century B.C. inscription; and* B. *Mahurjhari: stone-circle. See p. 24*

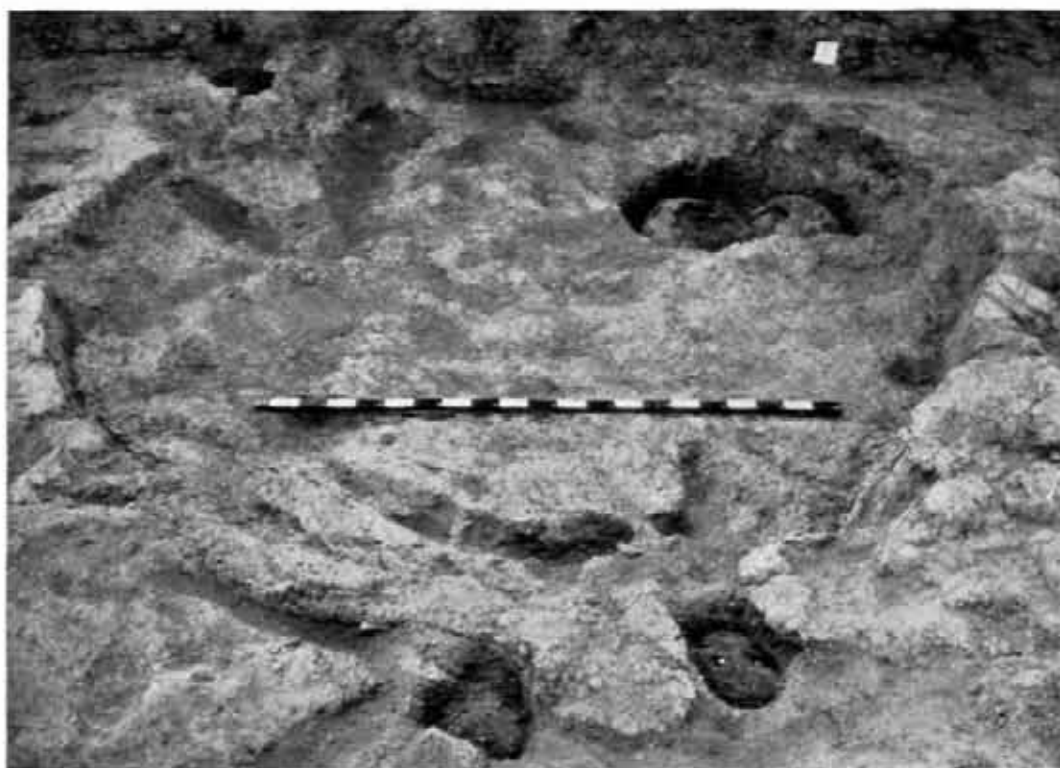


B

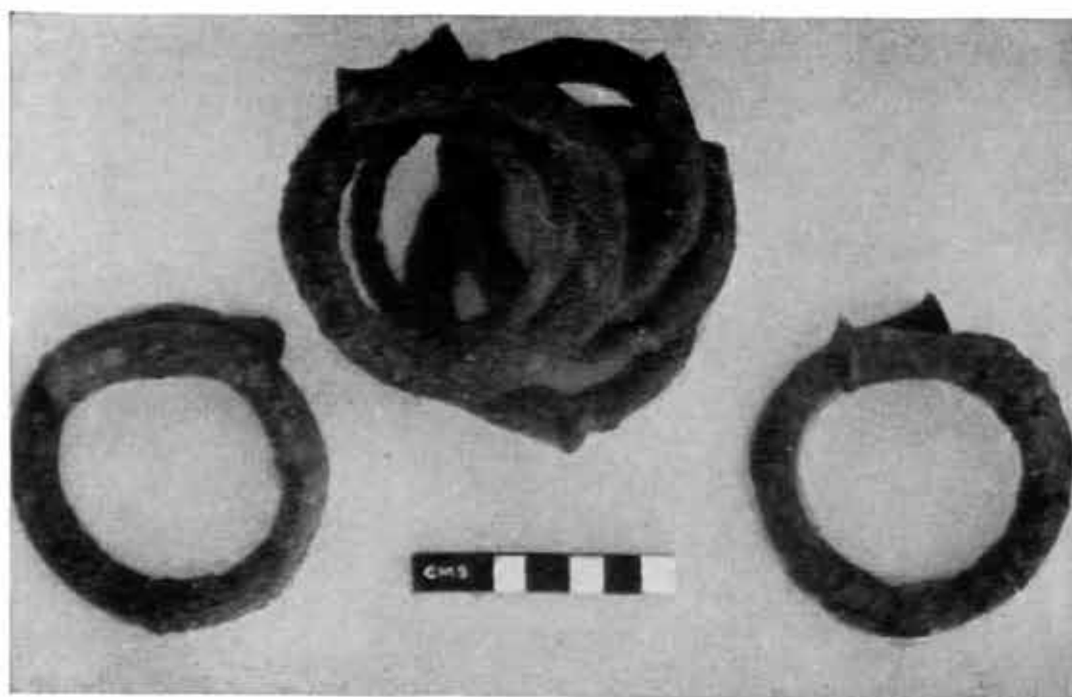


A

Mahurjhari: A, *painted pottery from the stone circles; and* B, *copper and iron objects.* *See p.25*

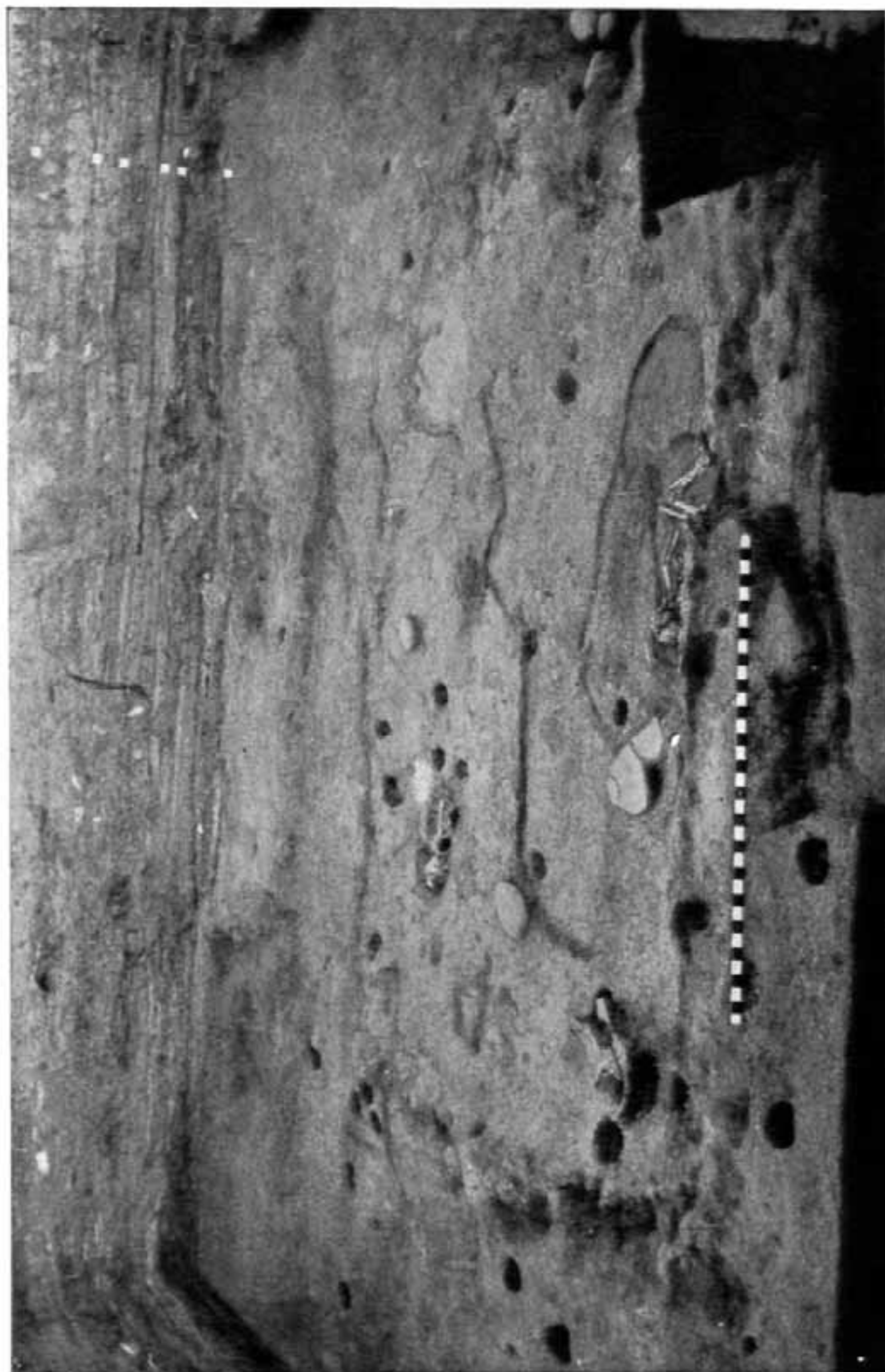


A



B

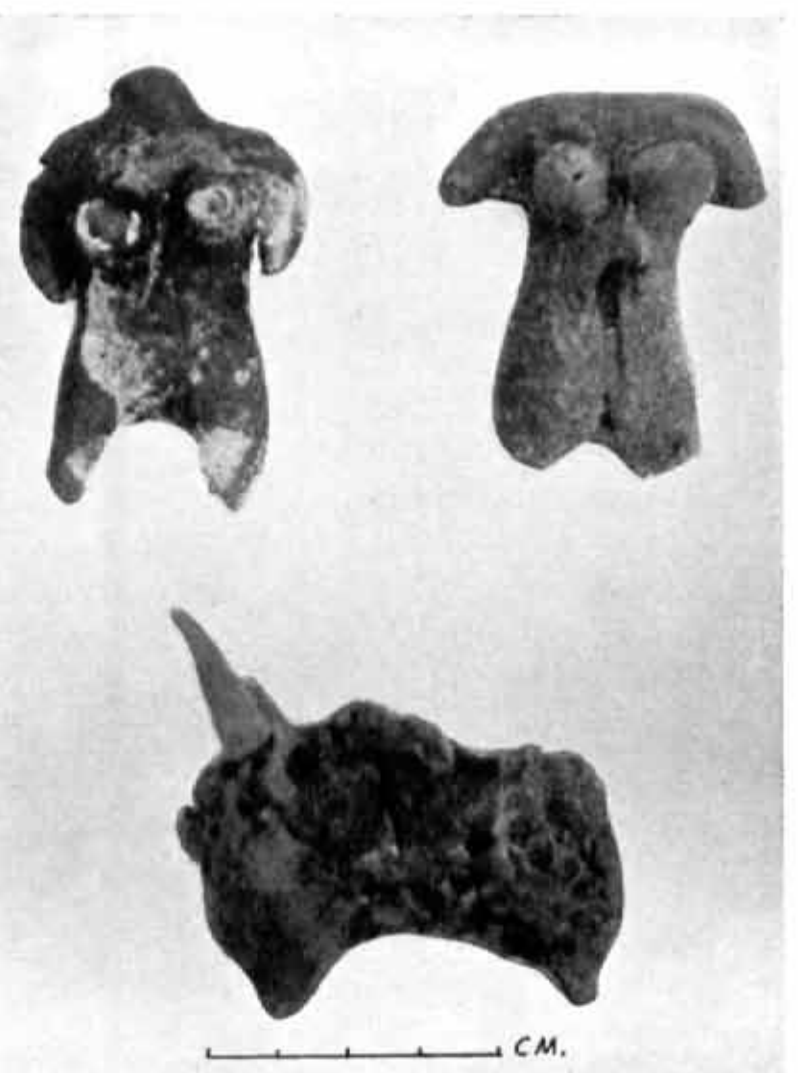
Inamgaon: A, *pit-dwelling, Malwa Culture;* and B, *copper bangles, early Jorwe Culture.* *See pp. 25 and 26*



Inamgaon: house-remains of early Jorwe Culture, *See p. 25*



A

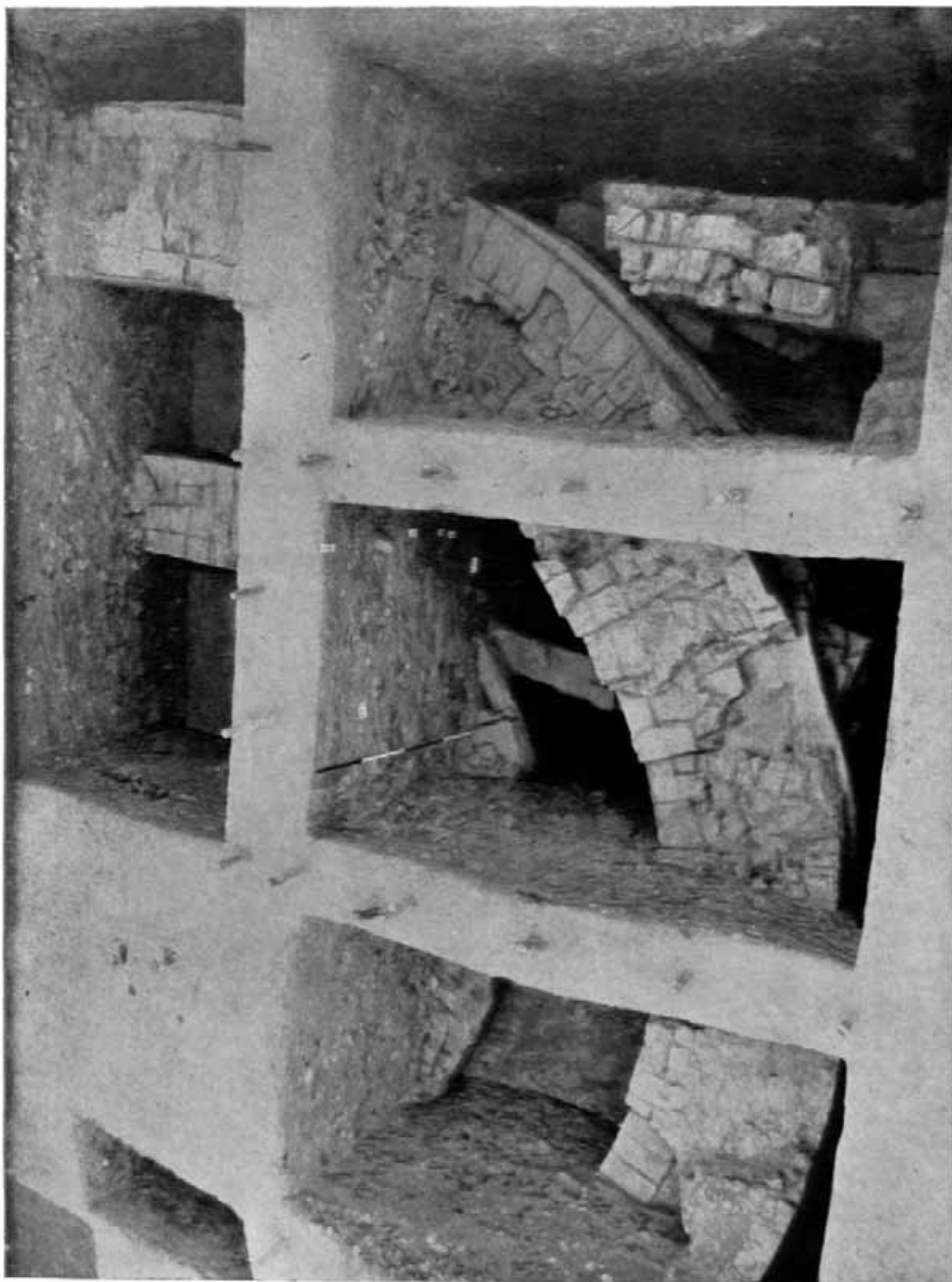


B

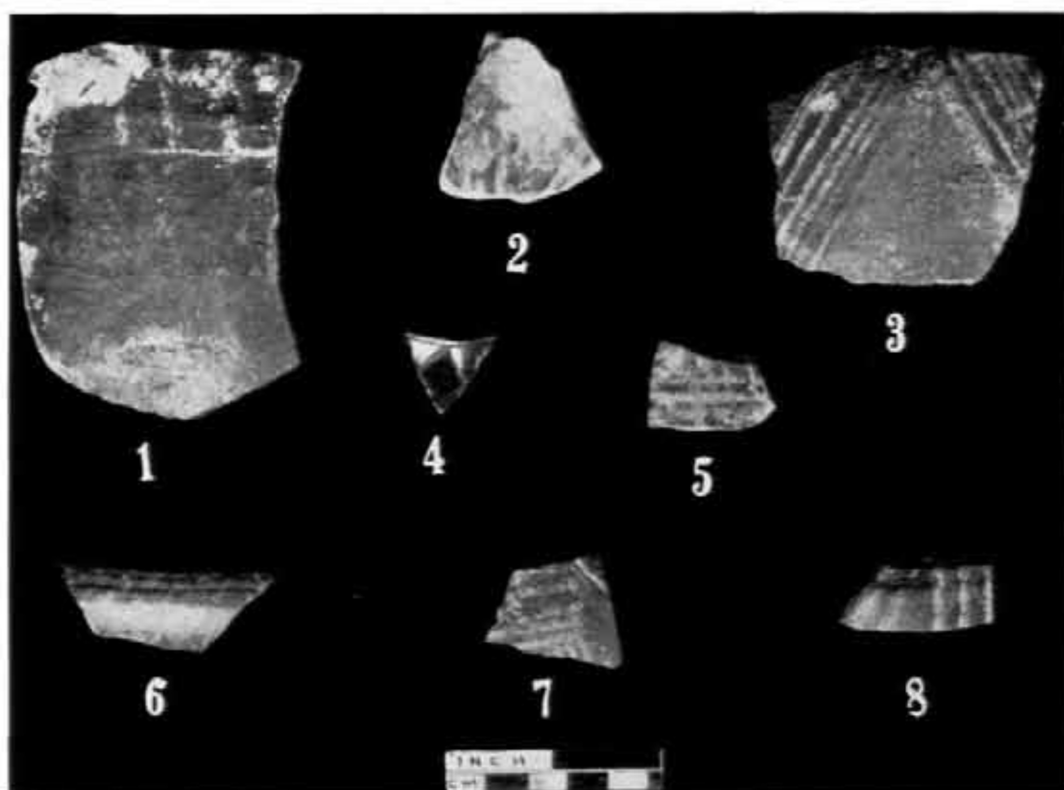
Inamgaon: A, *terracotta Mother-Goddess figurine in a clay receptacle, early Jorwe Culture;* and B, *Mother-Goddess and bull figurine, early Jorwe Culture.* *See p.* 26



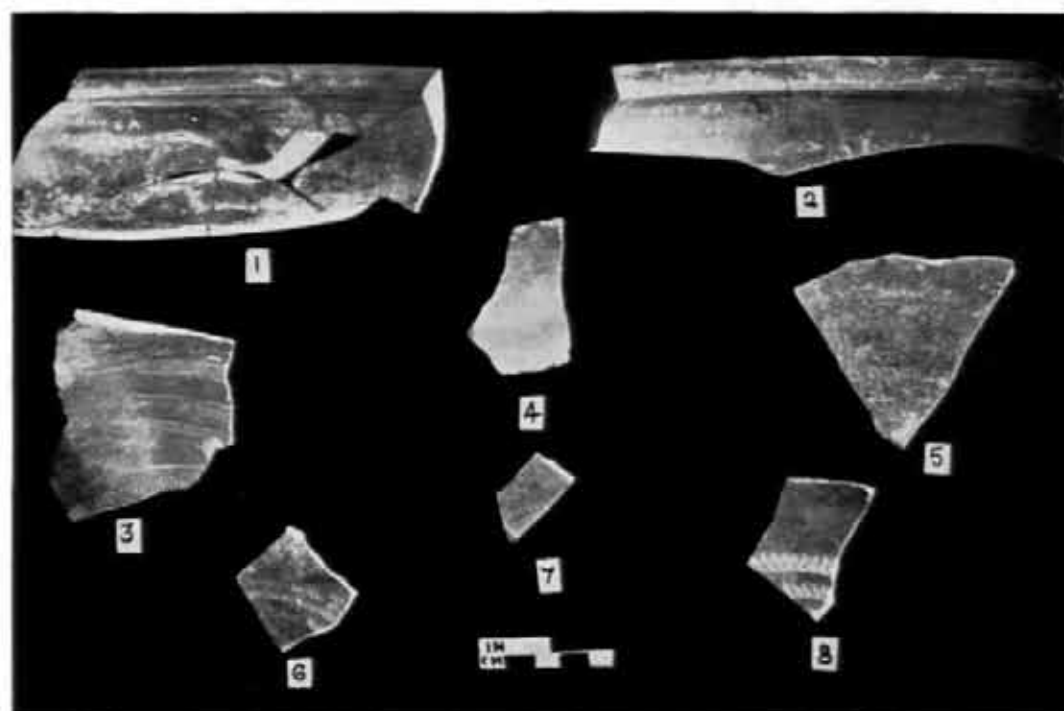
Banavasi: apsidal brick structure of the Satavahana Period. *See p. 29*



Banavasi: apsidal brick structure, Satavahana Period. *See p. 29*

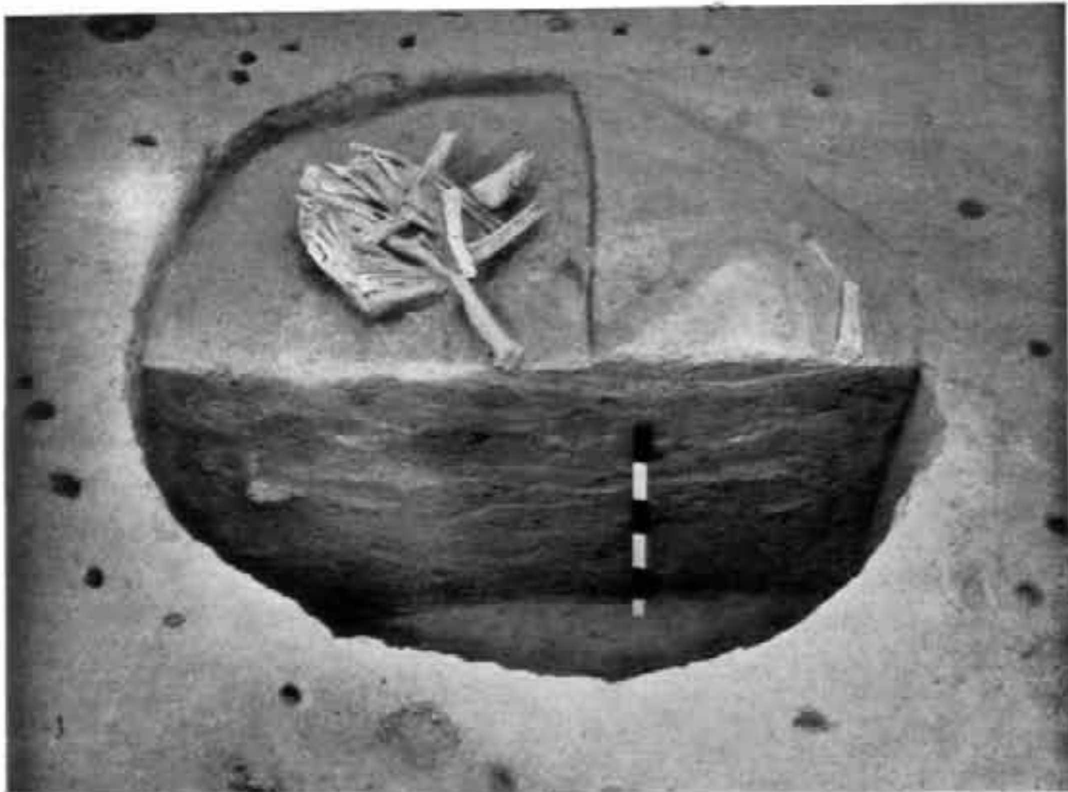


A



B

Banavasi: A, Russet-coated Painted Ware; and B, imitation Rouletted Ware. See p. 29

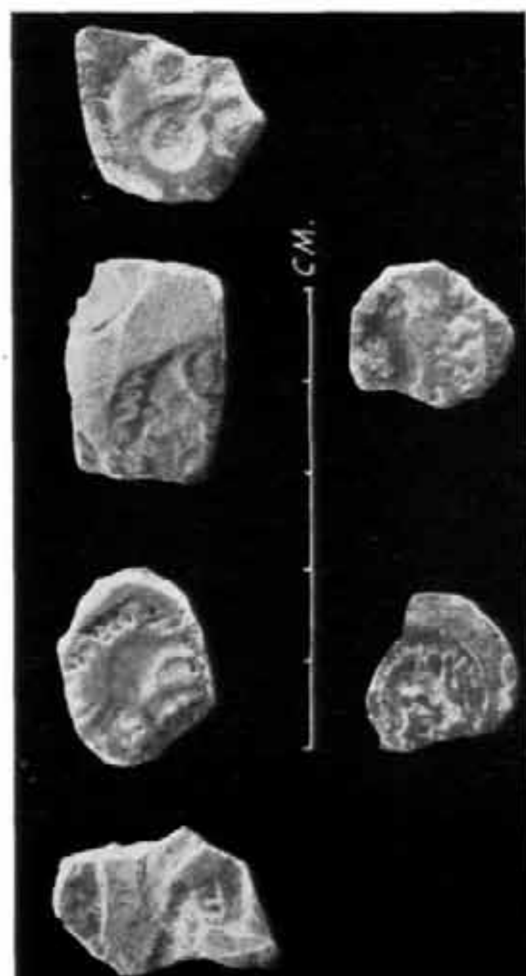


A

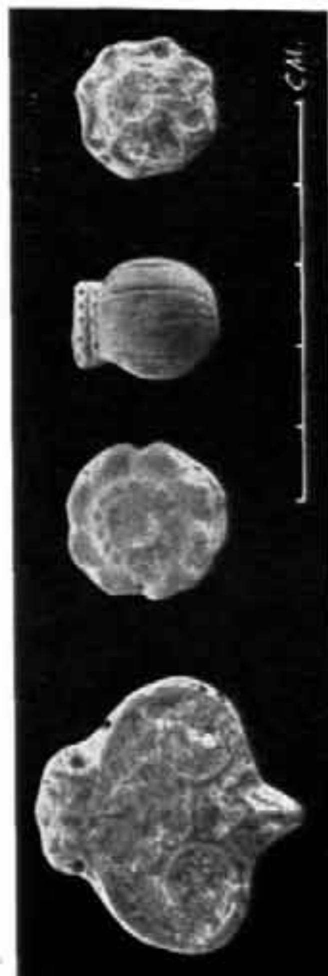


B

Sanghol: A, post-holes around a pit containing animal bones, Period II; and B, trench across northern defences, Period VI. *See p. 30*



A

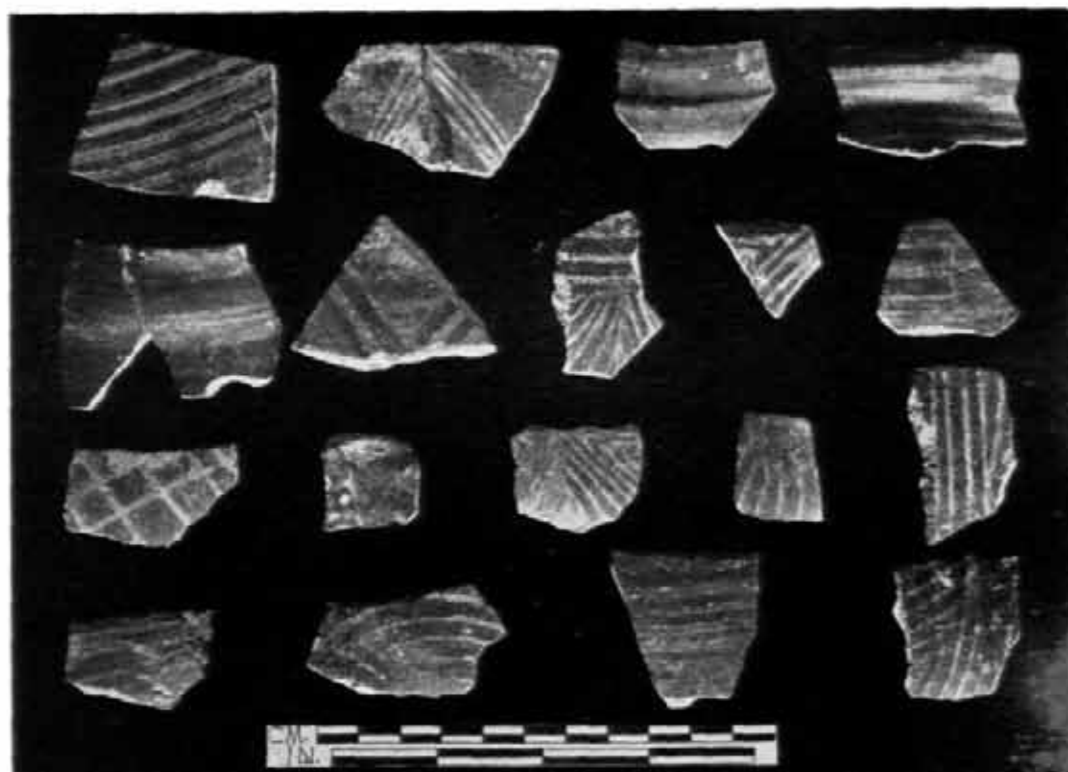


B

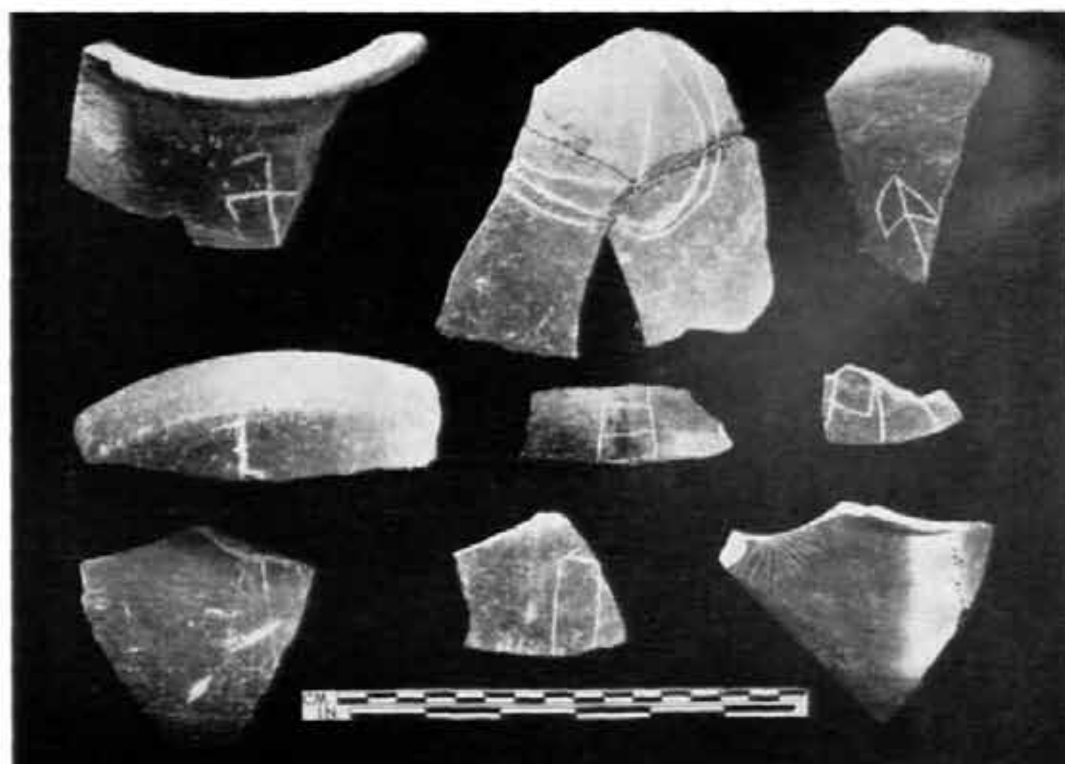


C

Kanchipuram: A, *terracotta coin-moulds;* B, *terracotta amulets; and* C, *part of a stupa-like structure.* *See pp.* 32 *and* 33

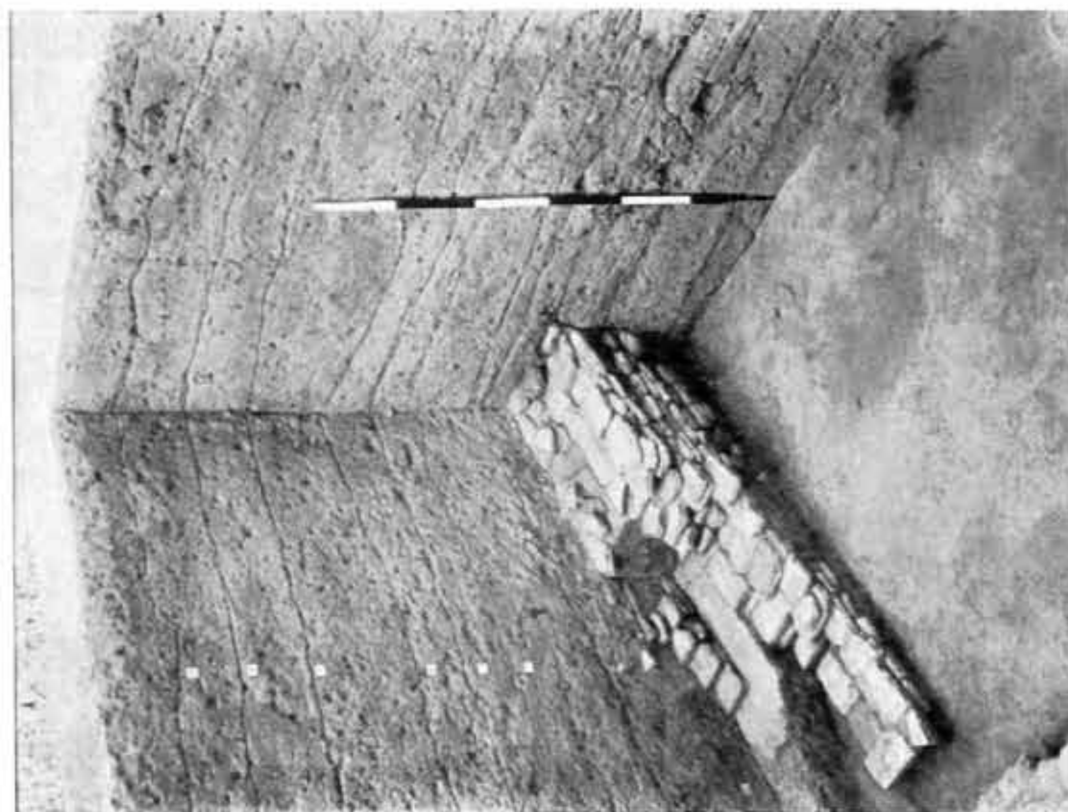


A



B

Perur: A, *Russet-coated Painted Ware, Period II*; *and* B, *graffiti-bearing pottery.* *See p. 34*



A

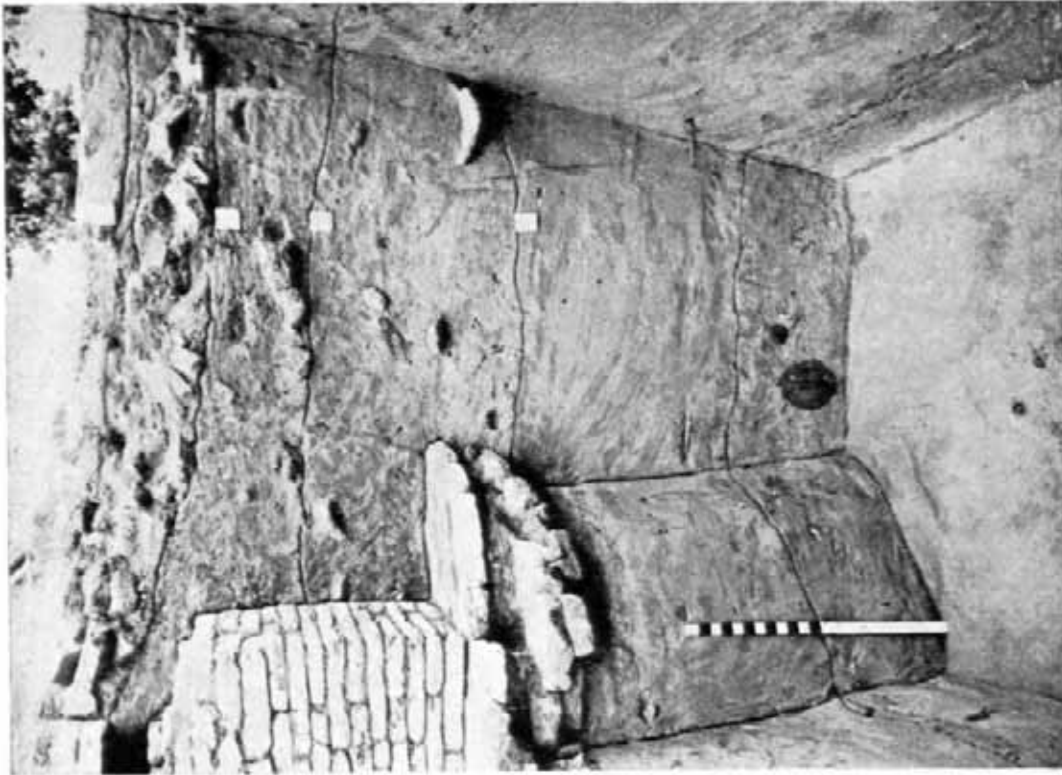


B

Perur: A, *baked brick wall, Period III;* B, *covered stone drain, Period III.* *See p. 34*



Arumbhavimalai: painting on the ceiling of the cavern. *See p. 34*

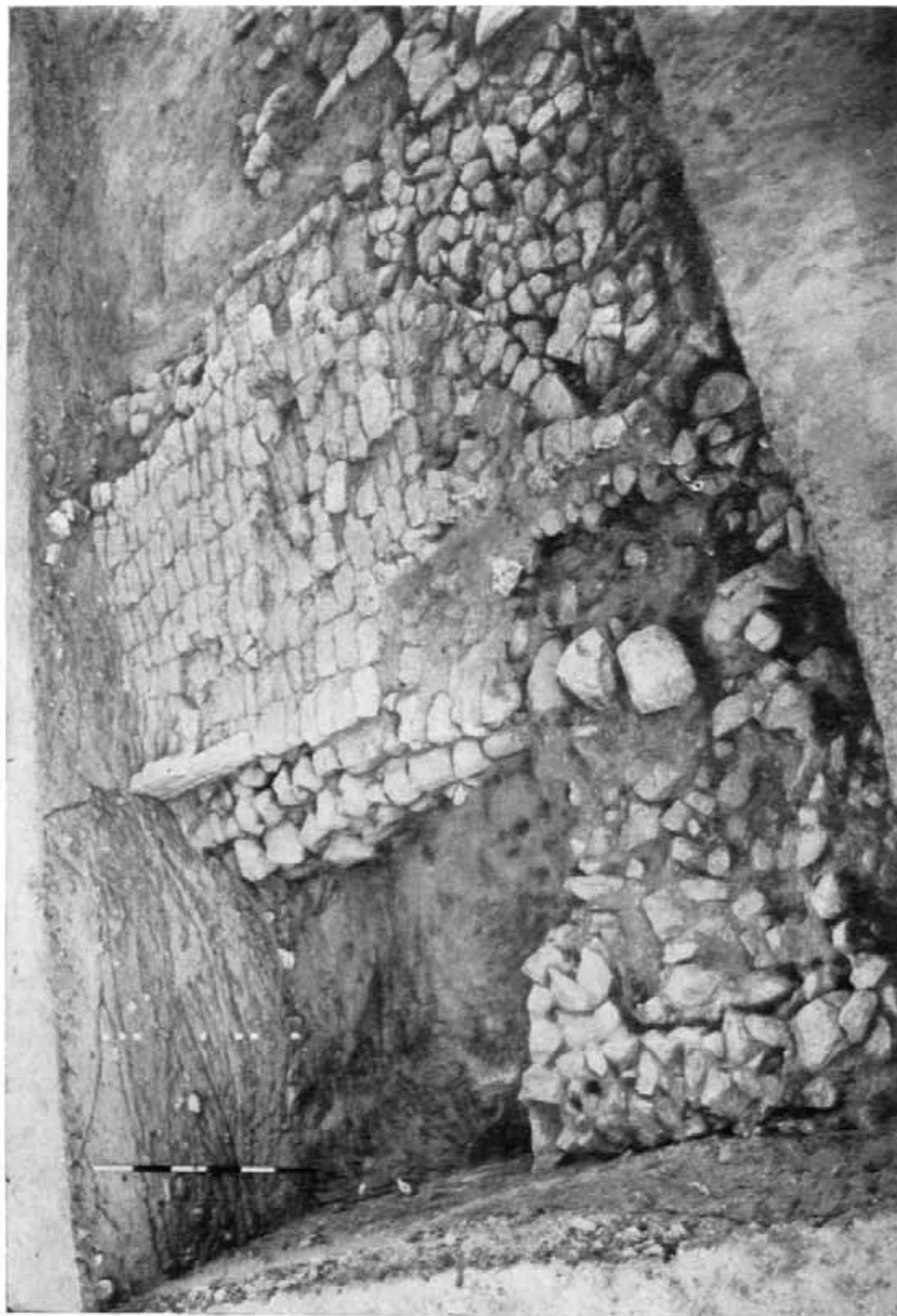


B

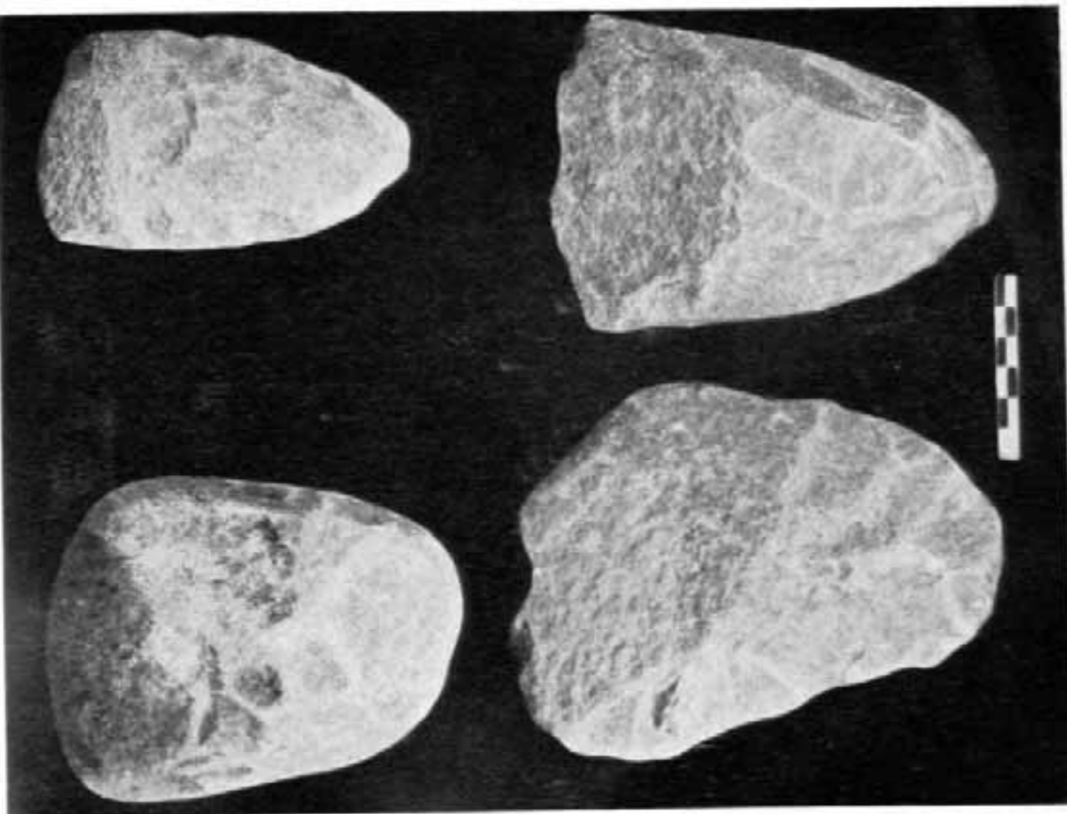


A

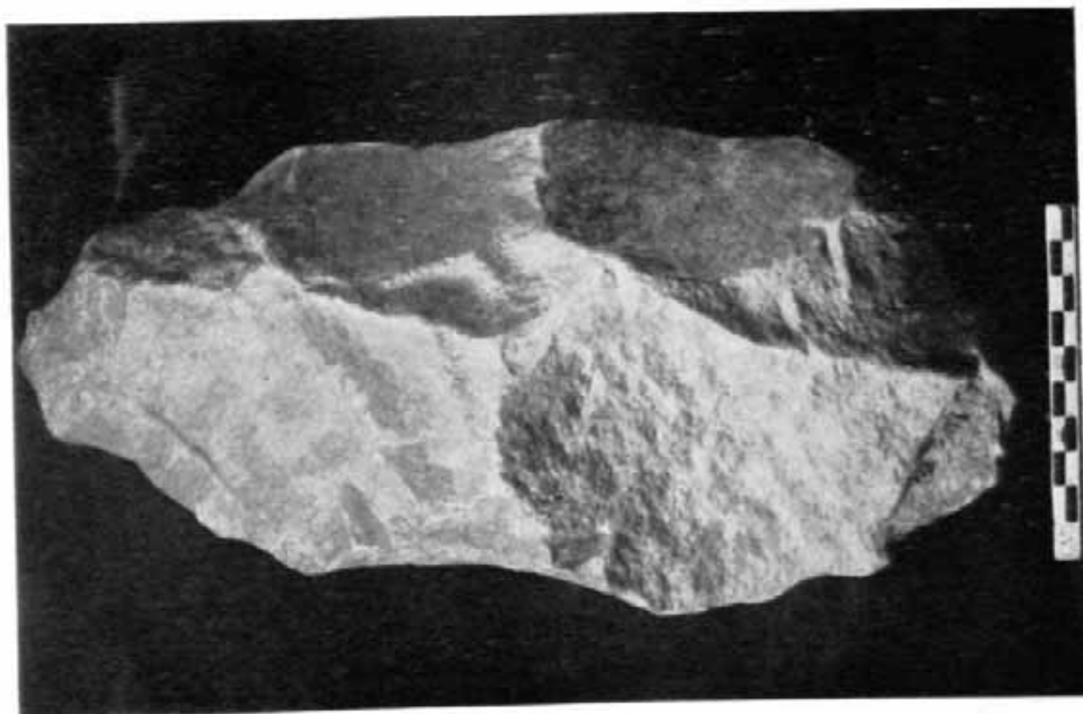
Kaveripattinam, Sampapati Amman temple: A, *wall, plinth and foundation of the temple with a ring-well in the foreground; and* B, *closeview of the platform and brick-bat courses. See p. 35*



Ukkirankottai: remains of the rampart and section looking east. *See p. 35*



B

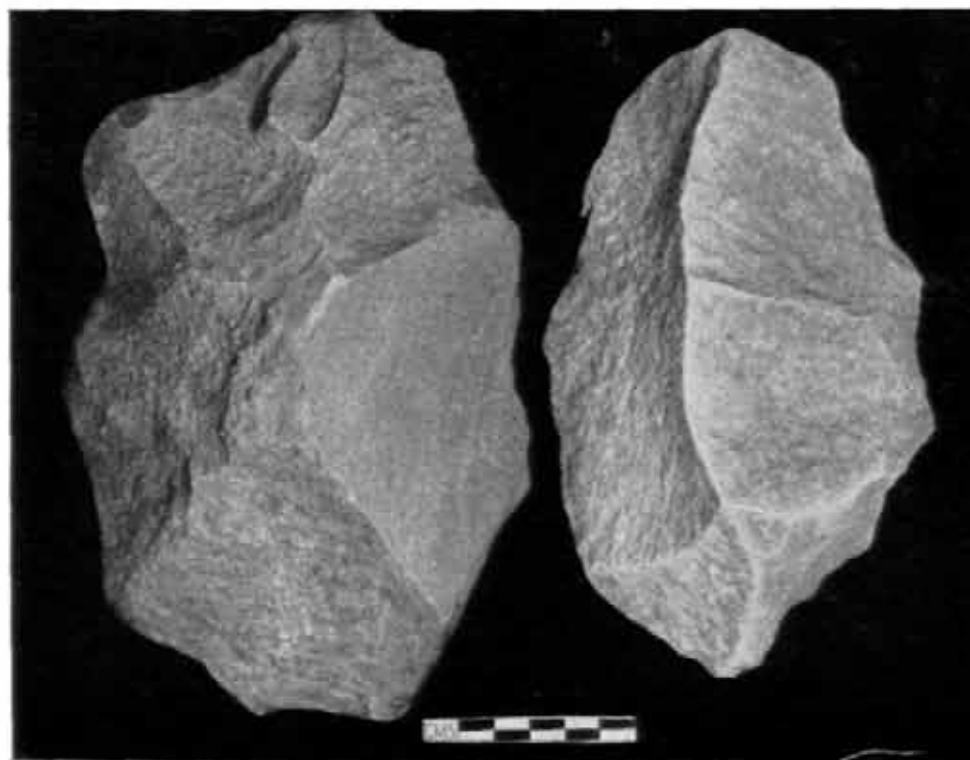


A

Belan Valley: A, *pebble handaxe from Chhatarpalia; and* B, *cleavers from Gravel I.* *See p. 35*

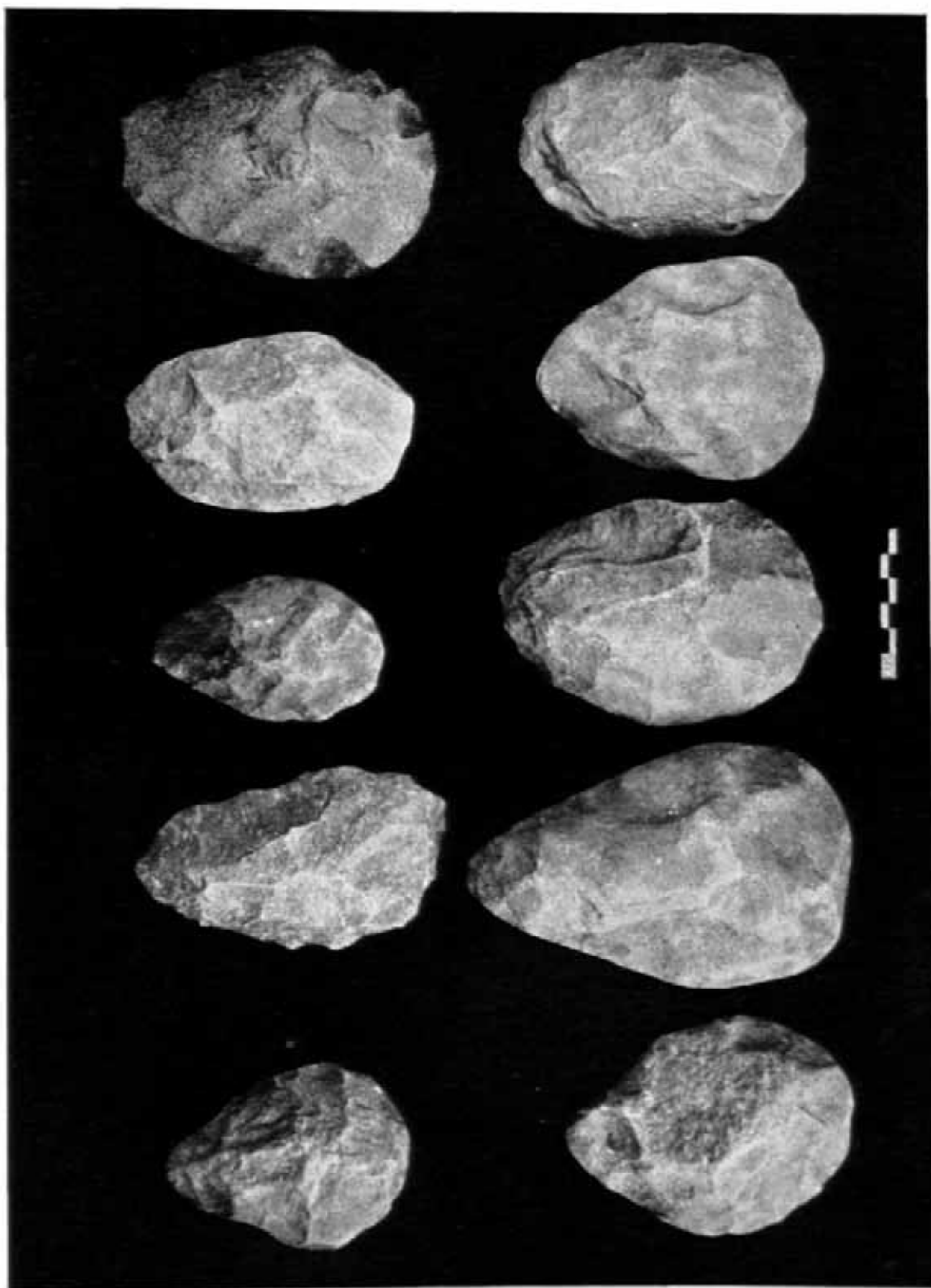


A

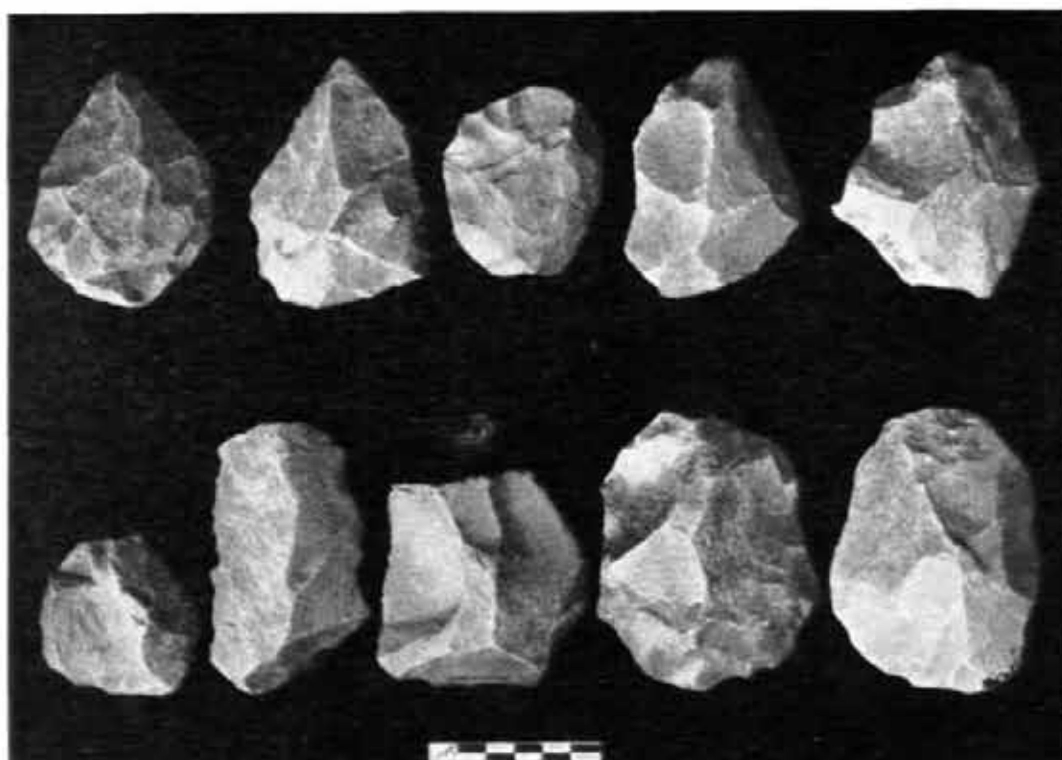


B

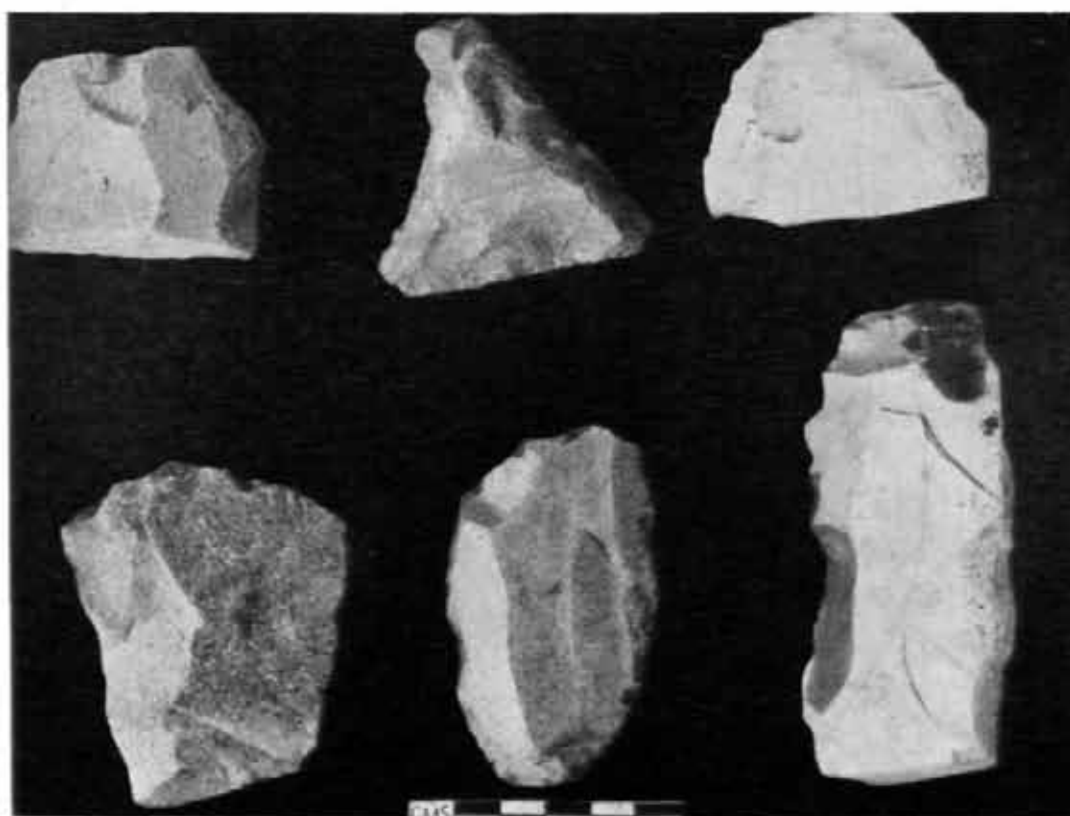
Belan Valley: A, *cleavers; and* B, *cleaver and handaxe from Koskangarha.* *See p. 35*



Belan Valley : handaxes. *See p. 35*

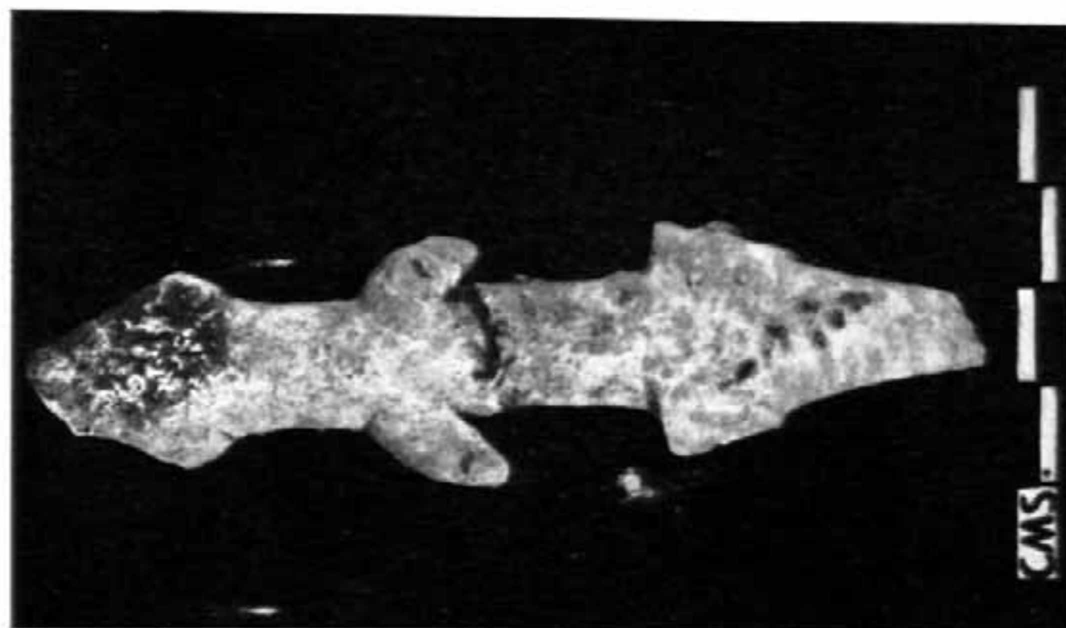


A

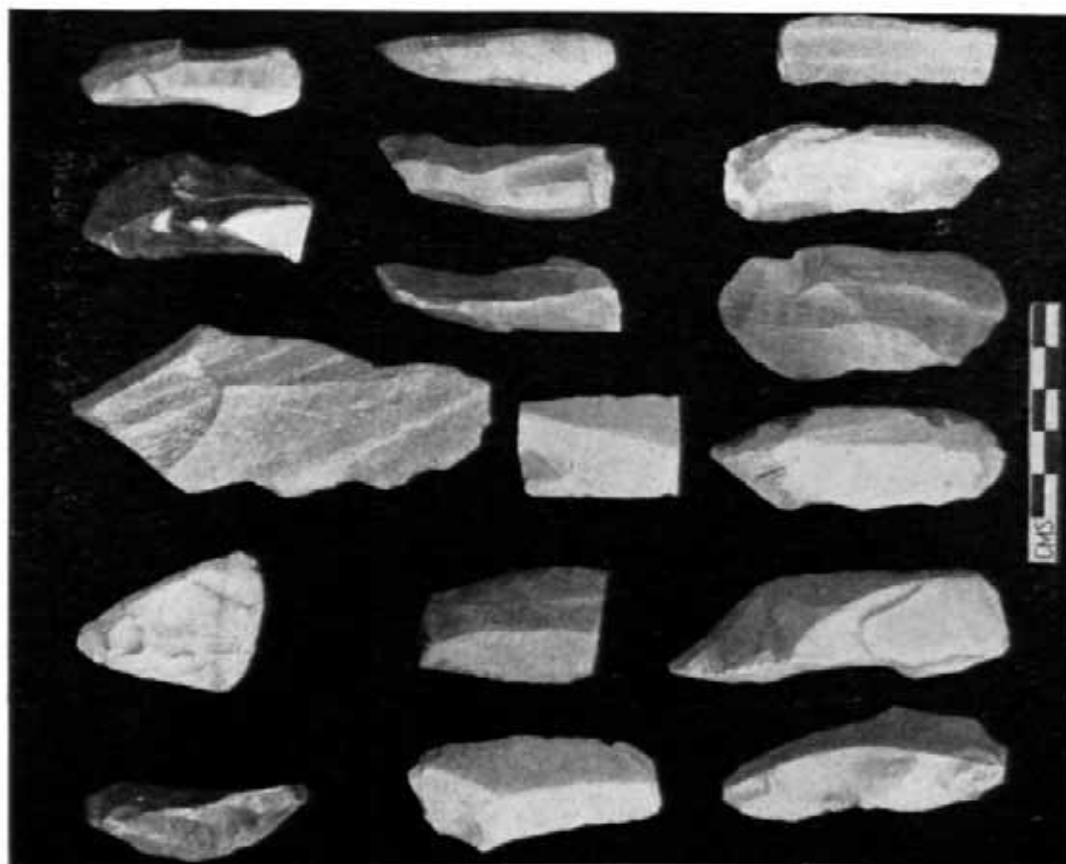


B

Belan Valley : Middle Stone Age tools. *See p. 36*

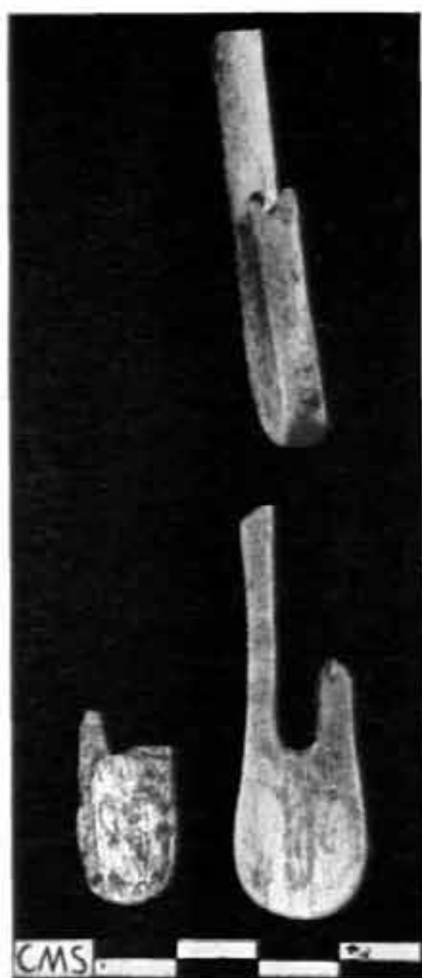


B

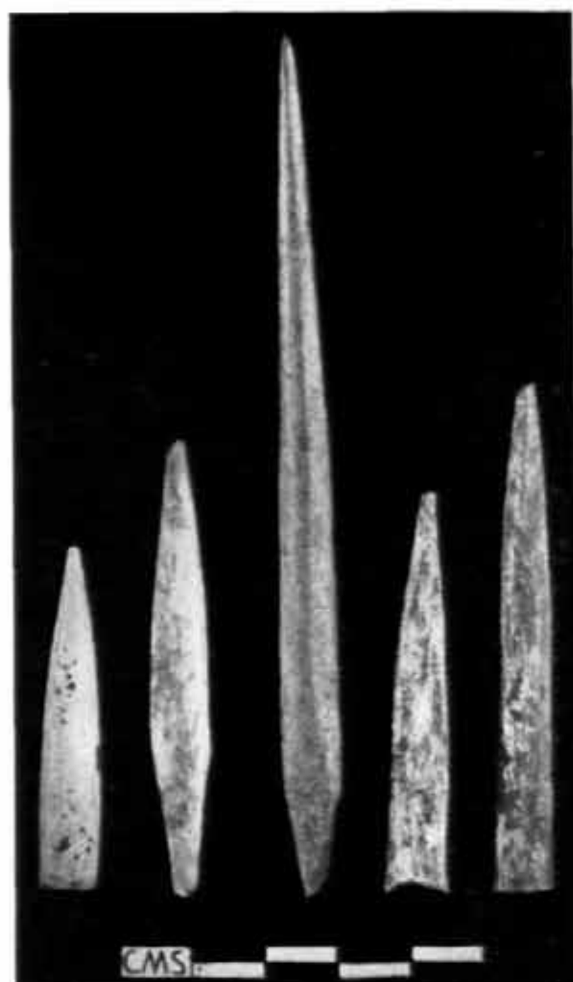


A

Belan Valley : A Upper Palaeolithic tools; and B, *bone harpoon (human figure ?) from Daiya on the Lohanda.* *See p. 36*



A



B

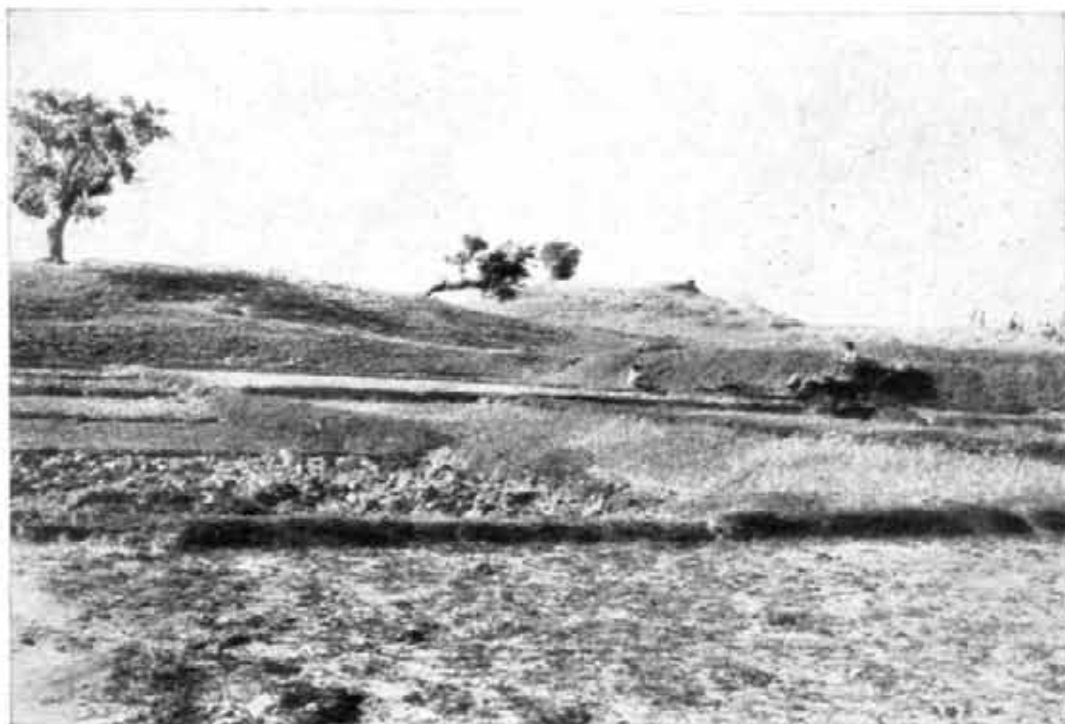


C



D

Belan Valley, Koldihawa on the Belan: A, *perforated bone objects;* B, *bone arrowheads with circular cross-section;* C ,*burnt clay with reed impressions; and* D, *barbed bone arrowheads with socketed tangs.* *See p. 37*



A



B

Piprahwa: A, *general view of the site;* and B, *section against the stupa,* *See p. 37*

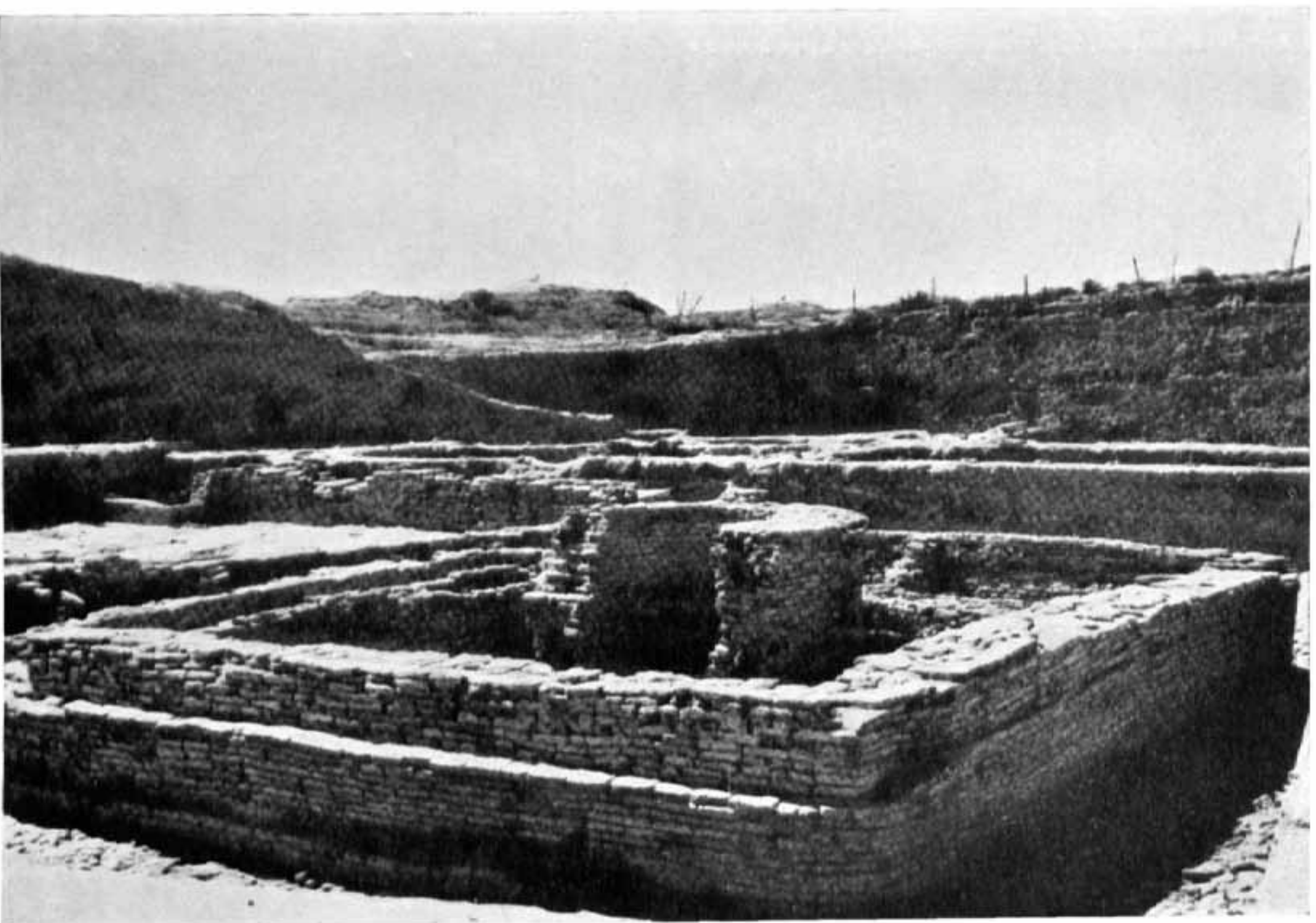


A

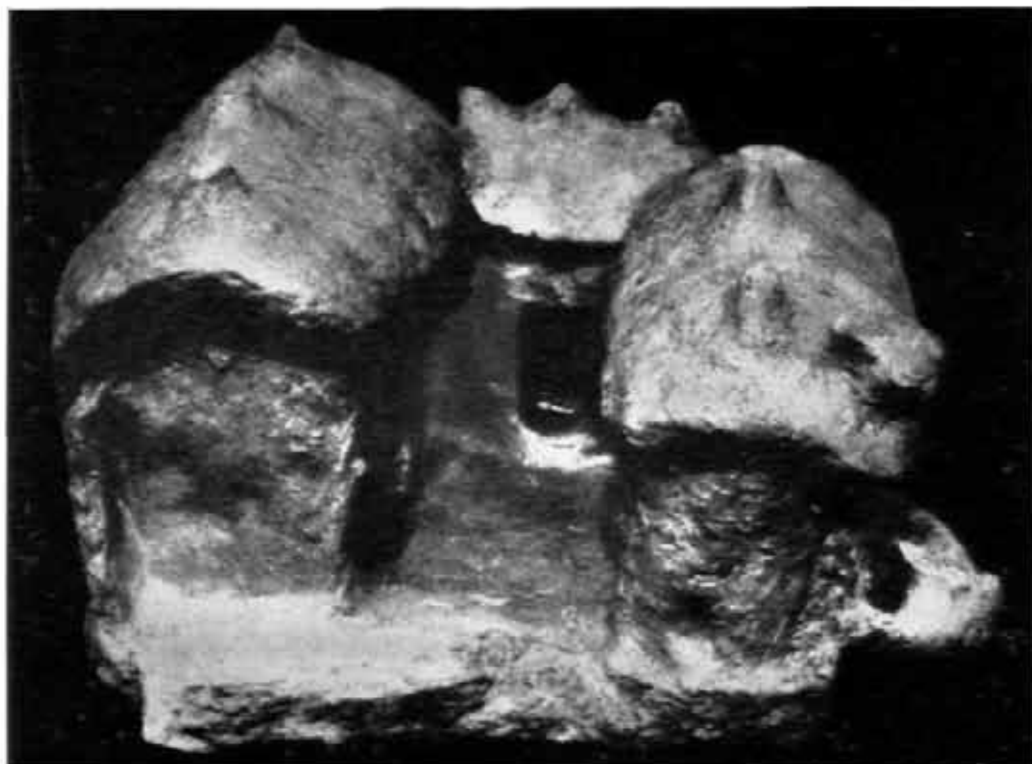


B

Piprahwa: A, *part of a monastery showing four structural phases; and* B, *hall with paved bricks.* *See p. 37*



Sonkh: an apsidal temple belonging to the Kushana period. *See p. 40*



A



B

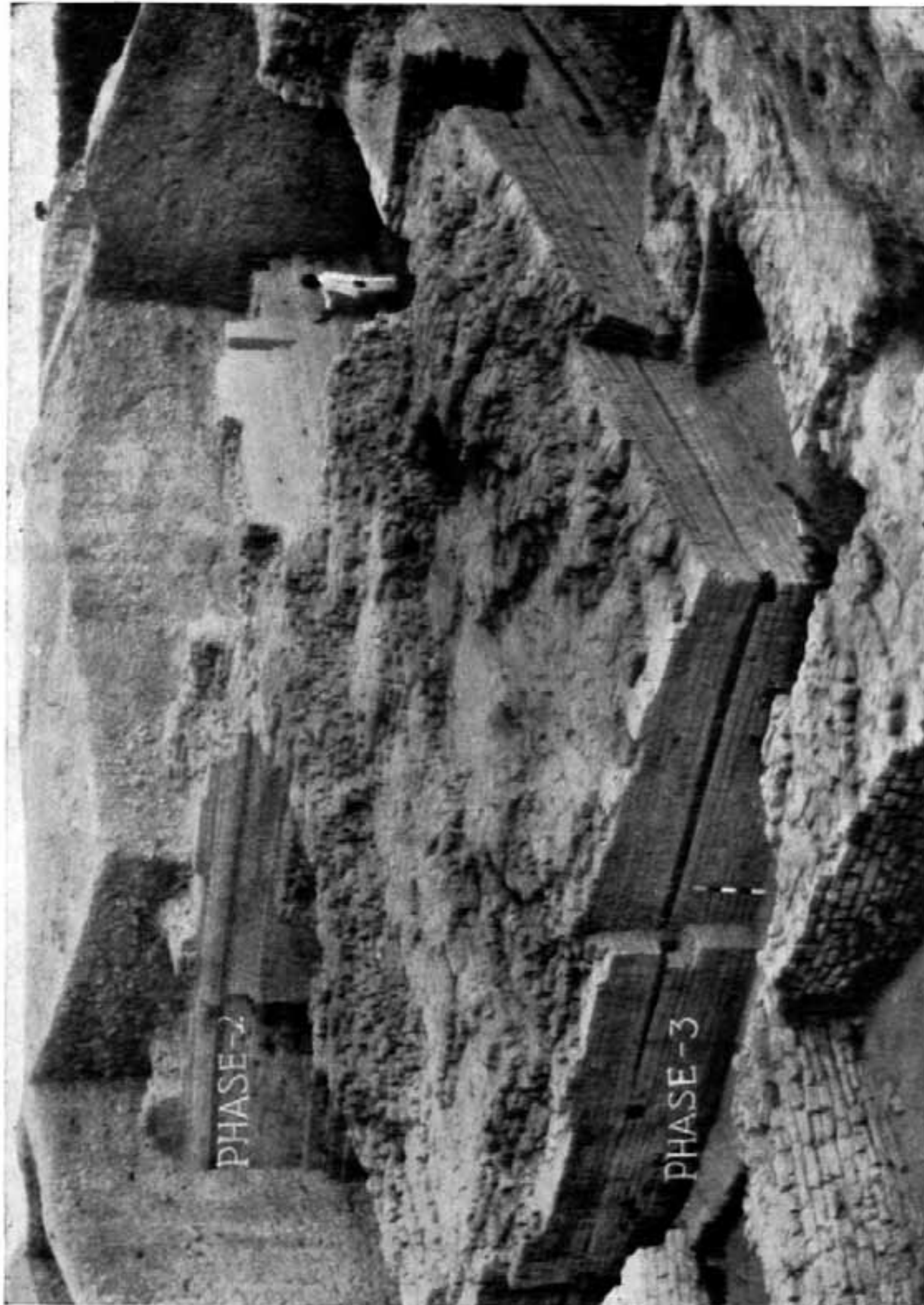


C

Sonkh: A, *votive-tank in the shape of a house with vaulted roof*; B, *bronze image of Skanda*: *and* C, *terracotta plaque, Kushana Period.* *See p. 40*



Kashipur : brick-paved pradakshina-patha of Phase 2. *See p. 43*



Kashipur : *walls of Phases 2 and 3 with the north-western tower in the foreground.* *See pp. 43 and 44*



A



B

Kashipur: A, *northern face of the wall, Phase-2;* and B, *ornamented wall of Phase-2 covered by structures of Phase-3.* *See pp. 43 and 44*

A



B

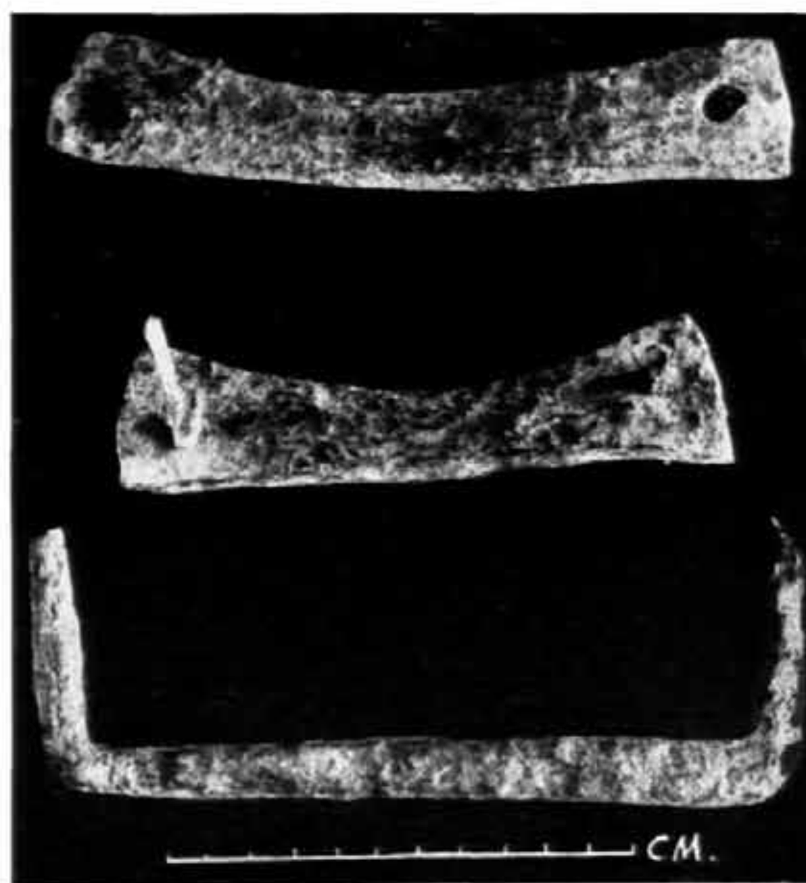


C

Kashipur : A *and* B, *decorated bricks* ; *and* C, *terracotta bulla.* *See p. 44*

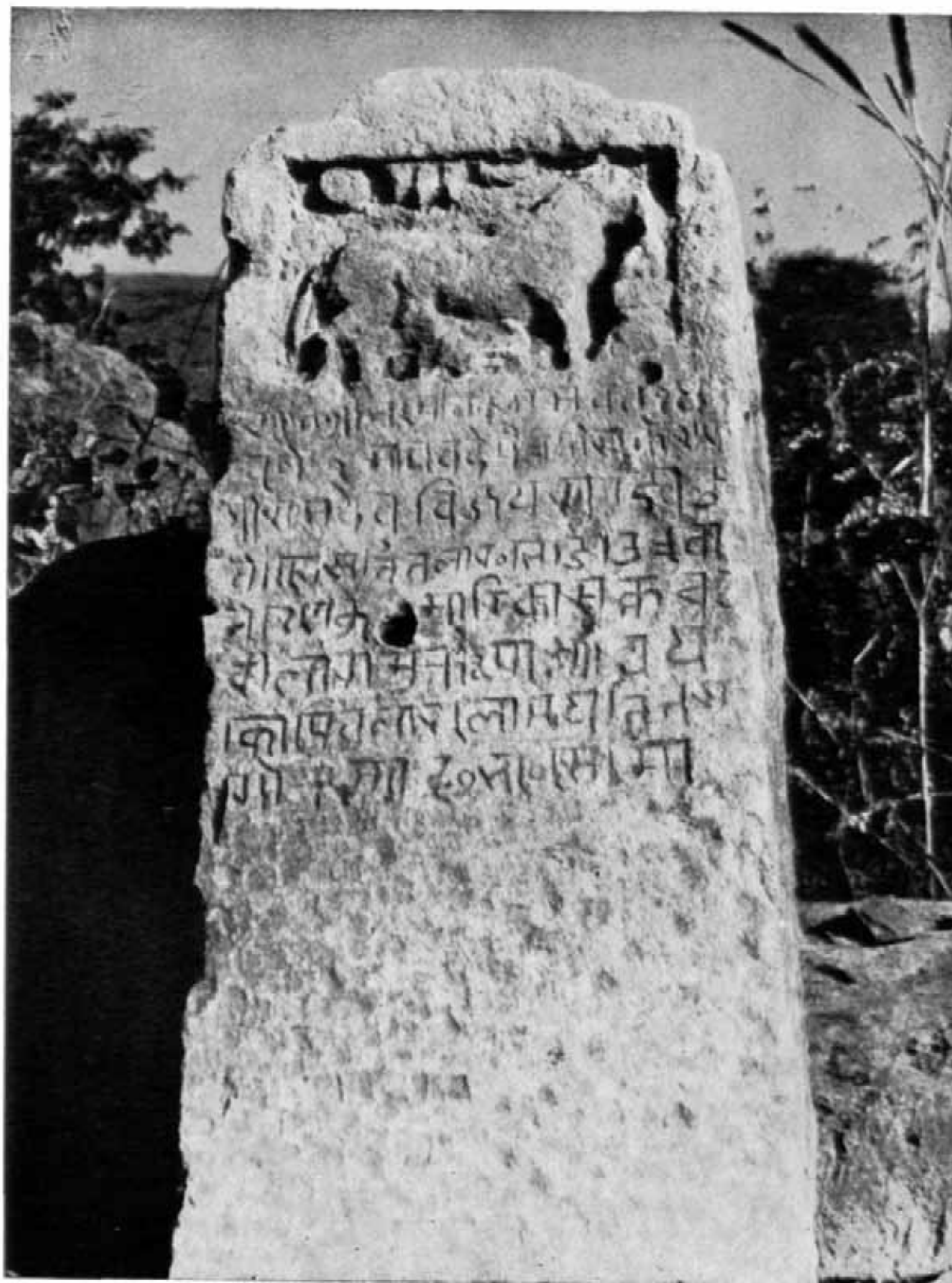


A



B

Kashipur : A, *terracotta plaques and a figurine*; *and* B, *iron clamps found in situ*. *See pp.* 44 *and* 45



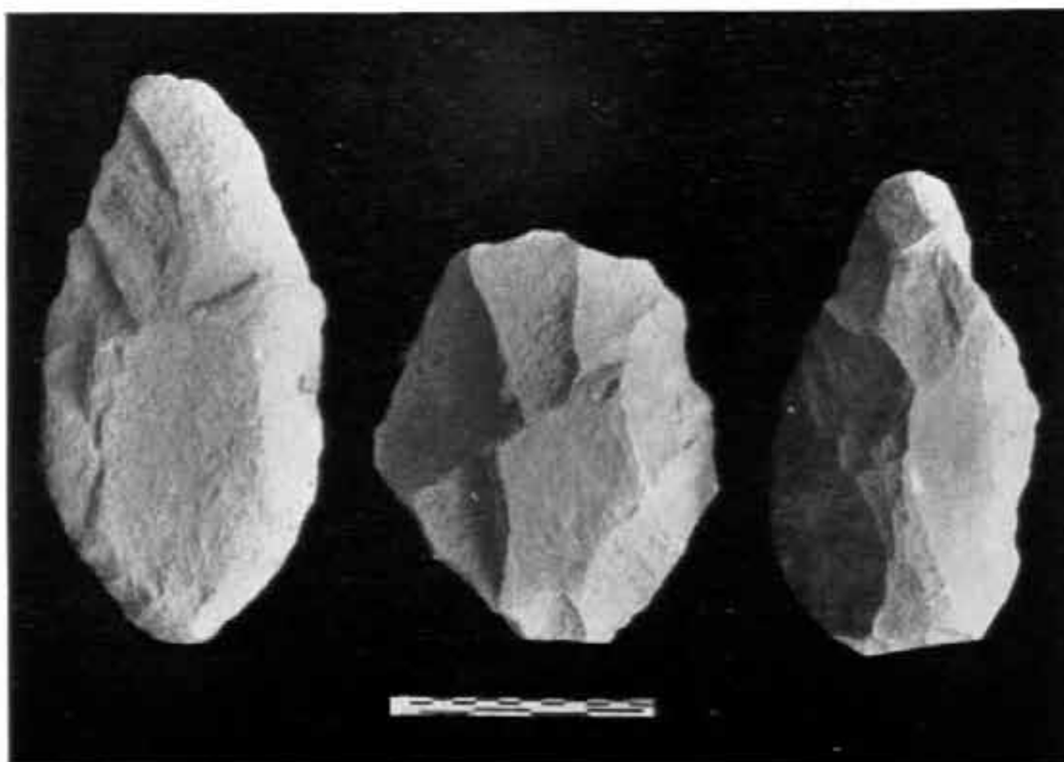
Ghumli, District Jamnagar: Nagari inscription. *See p. 47*



Bhonrasa, District Vidisha: inscription of Sultan Muhammad Shah. *See p. 58*

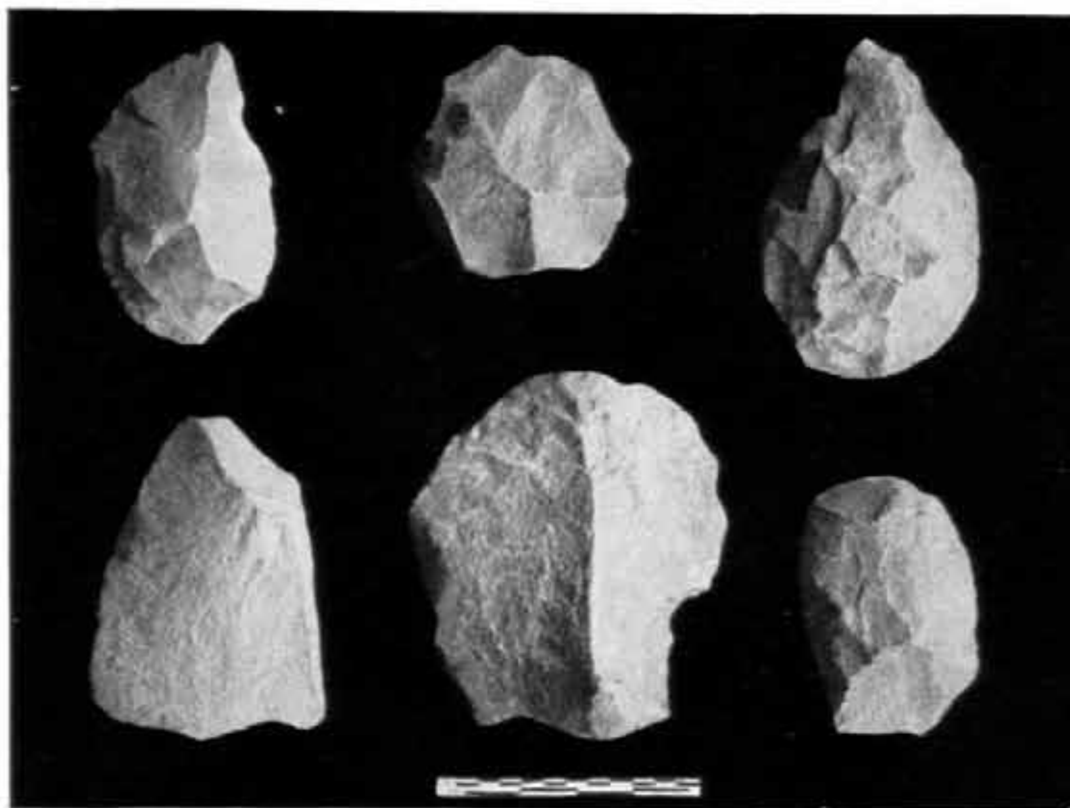


A

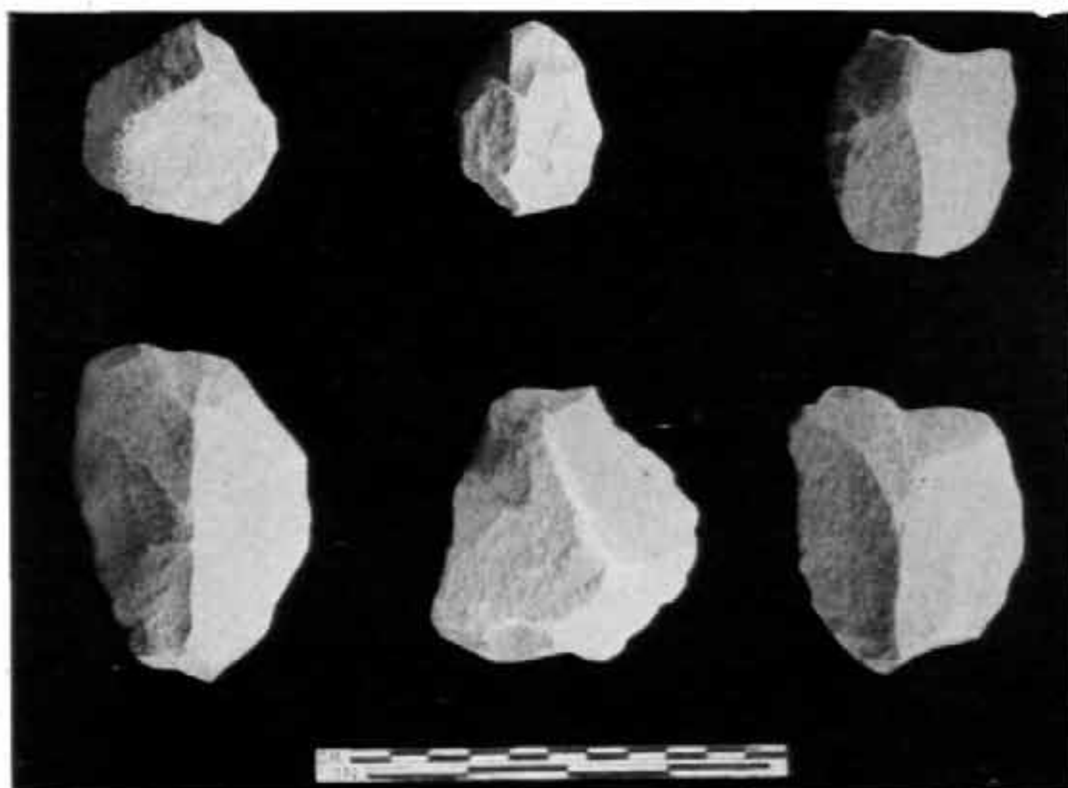


B

Agiya, District Sabarkantha: A, *early medieval temple;* and B, *Chanderi, District Guna: Early Stone Age tools.* *See pp. 65 and 66*



A



B

Chanderi, District Guna: A, *Early Stone Age tools;* and B, *Middle Stone Age tools.* *See p. 66*



A



B

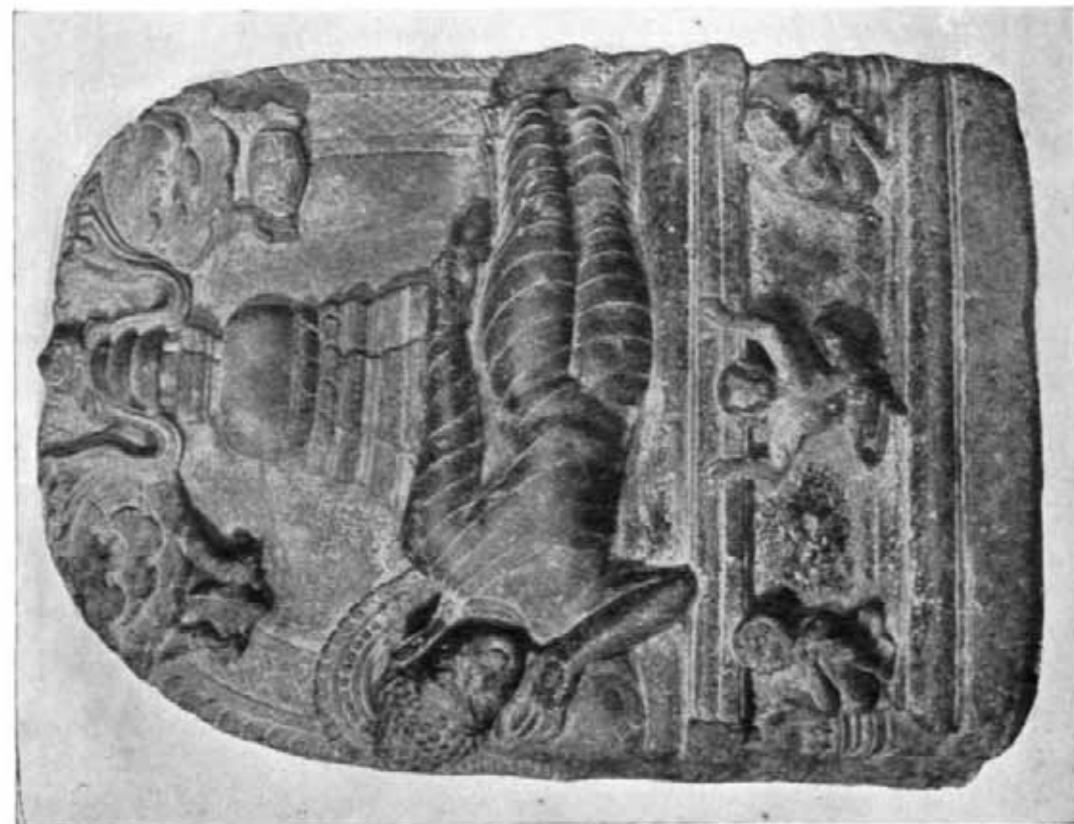


C



D

A. *Thoban, District Guna: nagi with a child;* B. *Parshivani, District Nagpur: image of Mahalakshmi;* C. *Chaurashi, Prachi Valley, District Puri: Lakshmi-Narayana image; and* D. *Prachi Valley, District Puri: kamandalu-shaped vase.* *See pp. 66, 67, and 69*



A



B

Indian Museum, Calcutta: stone sculptures from Dinajpur showing, A, *Mahaparinirvana of Buddha; and* B, *goddess Vasudhara.* *See p. 76*



A



B

Indian Museum, Calcutta: A, *terracotta sculpture showing dasabhuja Durga from Midnapore;* B, *Sarnath Bay of Long Gallery, after renovation.* *See p. 76*



A



B

Indian Museum, Calcutta : newly-acquired coins. *See p. 76*



B



C



A

A. *Gauhati Museum: Vishnu image from Burha-Burhi;* B. *Lucknow Museum: clay mould of the Sunga period; and* C. *Mathura Museum: fragment of an arch showing Trivikrama Vishnu.* *See pp. 77, 78 and 79*

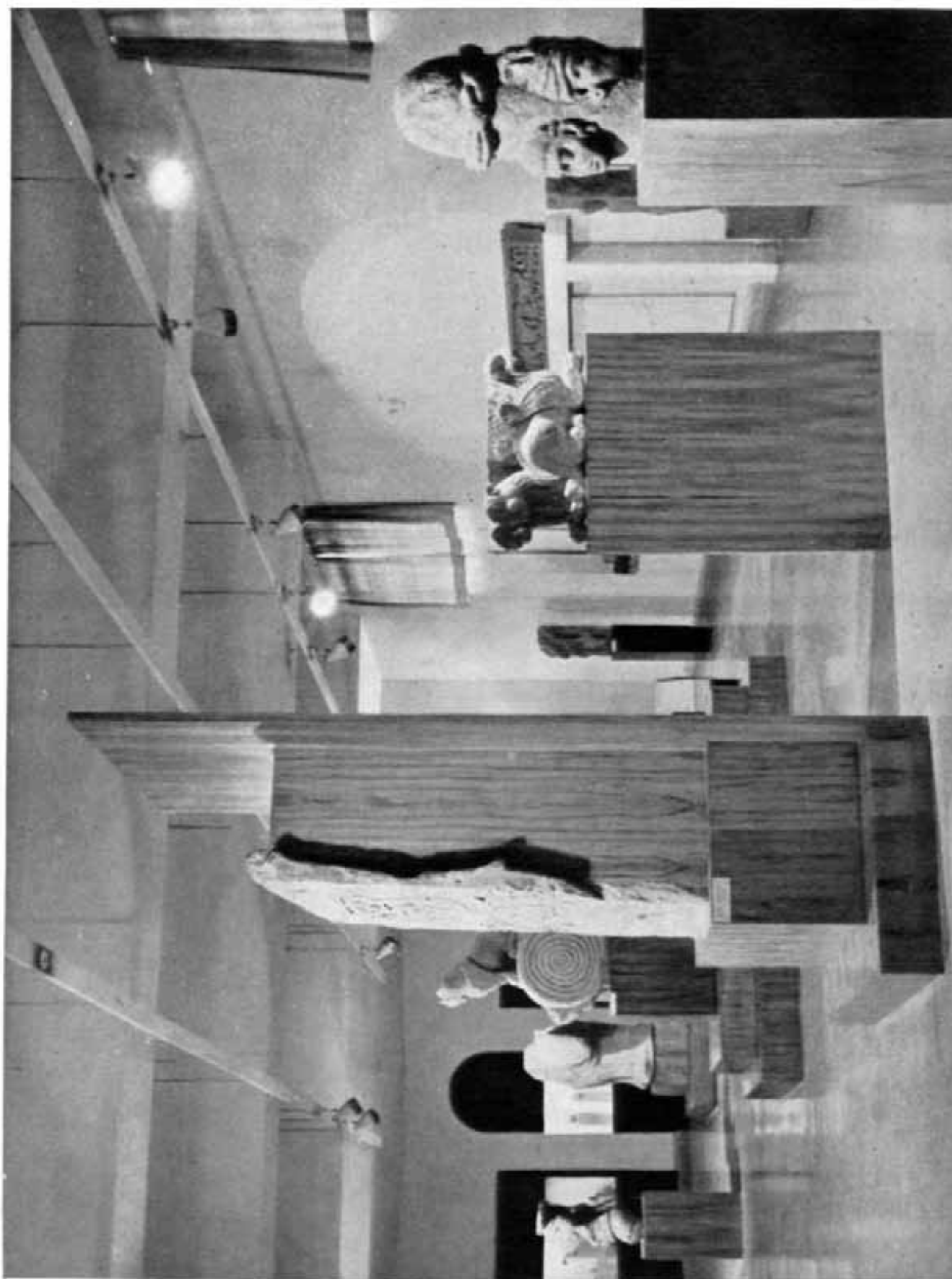


B



A

National Museum, New Delhi: A, *dancing Ganesa, circa tenth century; and* B, *chaturmukha linga, Gupta Period.* *See p. 79*



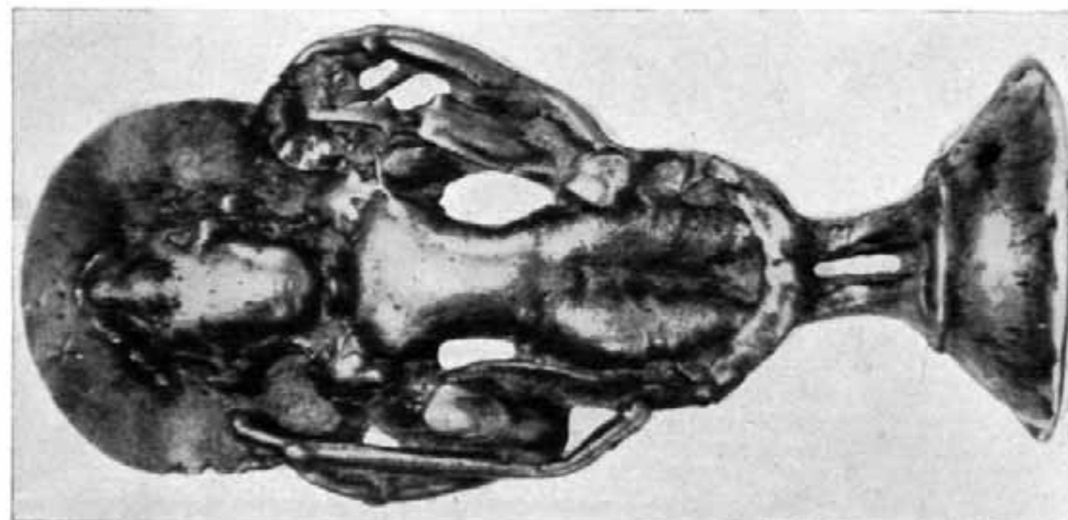
National Museum, New Delhi: general view of the 'Early Sculptures' gallery. *See p. 80*





A B

Museum and Picture Gallery, Vadodara: stone images of A, *Varahi; and* B, *Parvati from around Shamlaji.* *See p. 81*

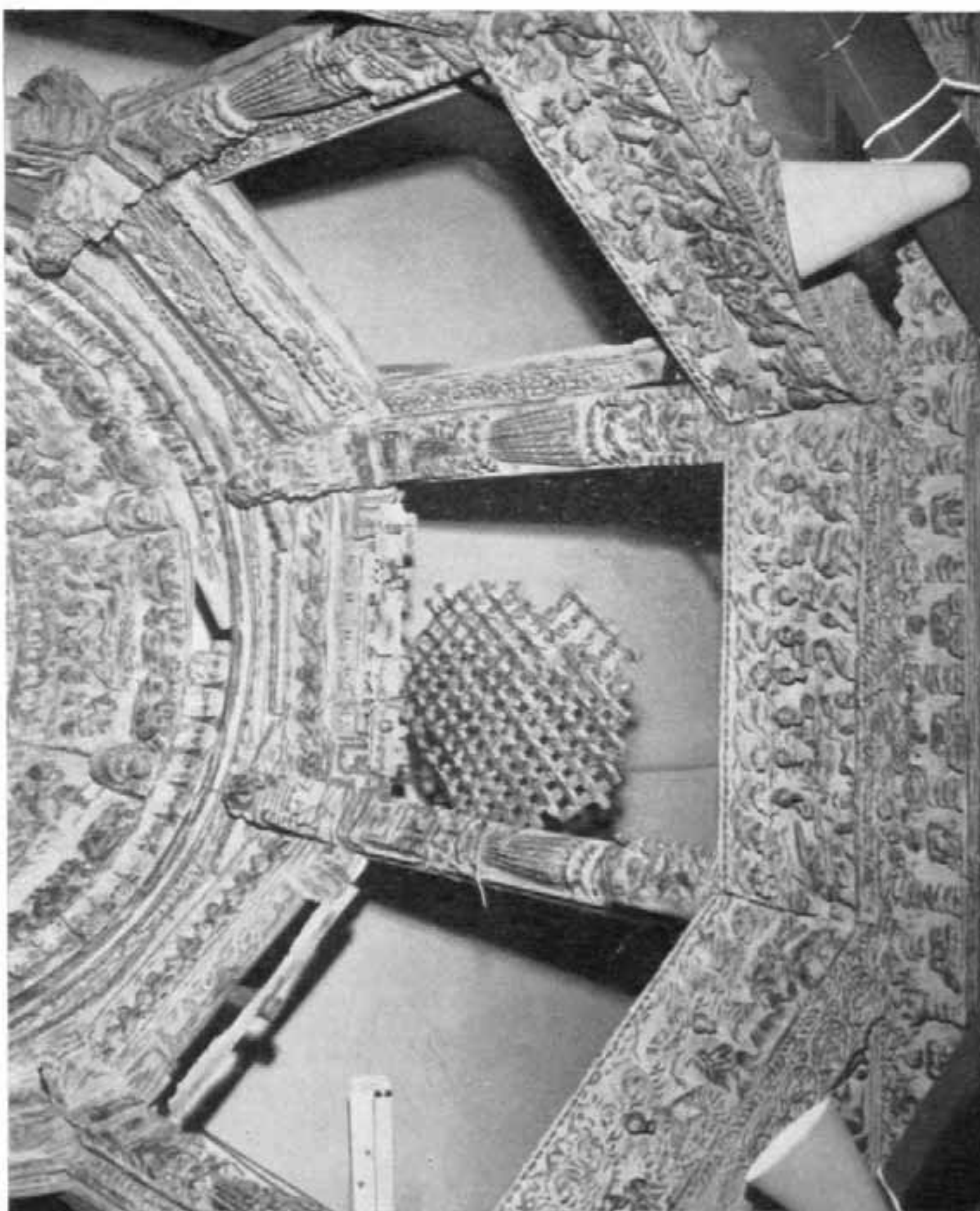


B

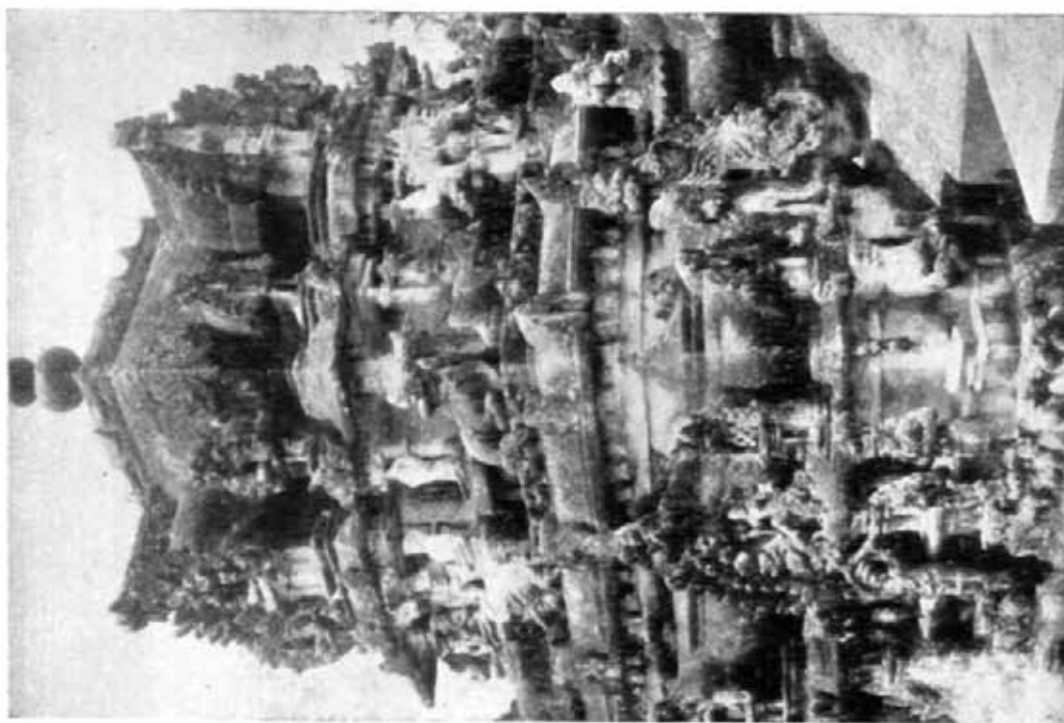


A

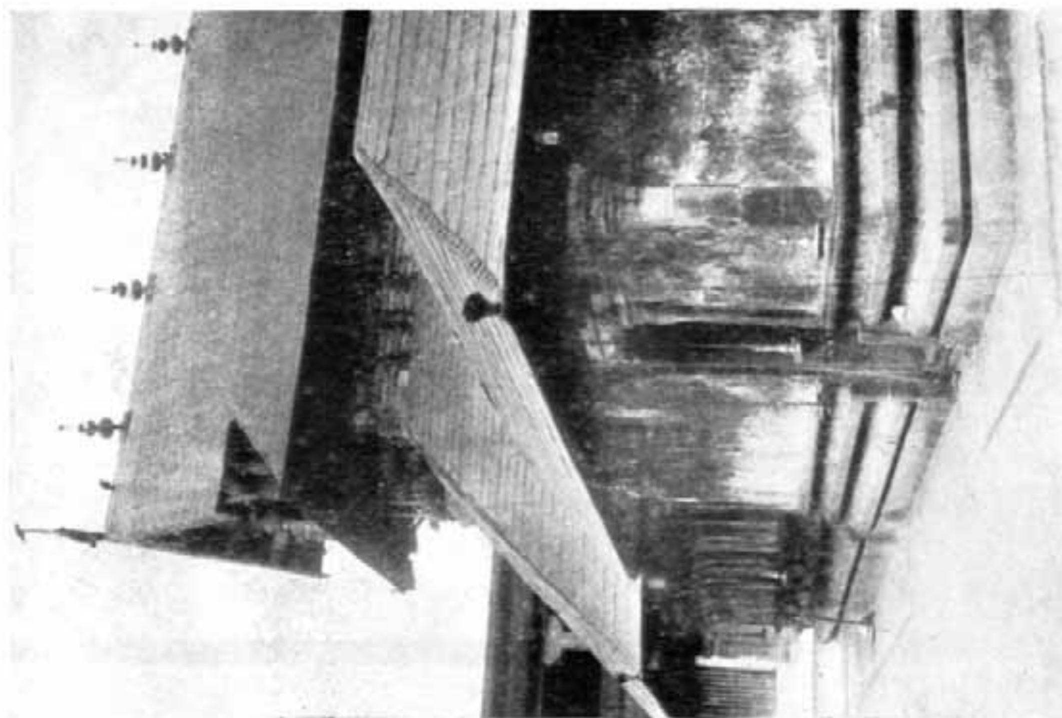
Museum and Picture Gallery, Vadodara: A, *stone image of Vishnu from around Shamlaji;* and B, *bronze image of Vishnu.* *See p. 81*



Museum and Picture Gallery, Vadodara: Jaina wooden mandapa from Patan, fourteenth century. *See p. 81*

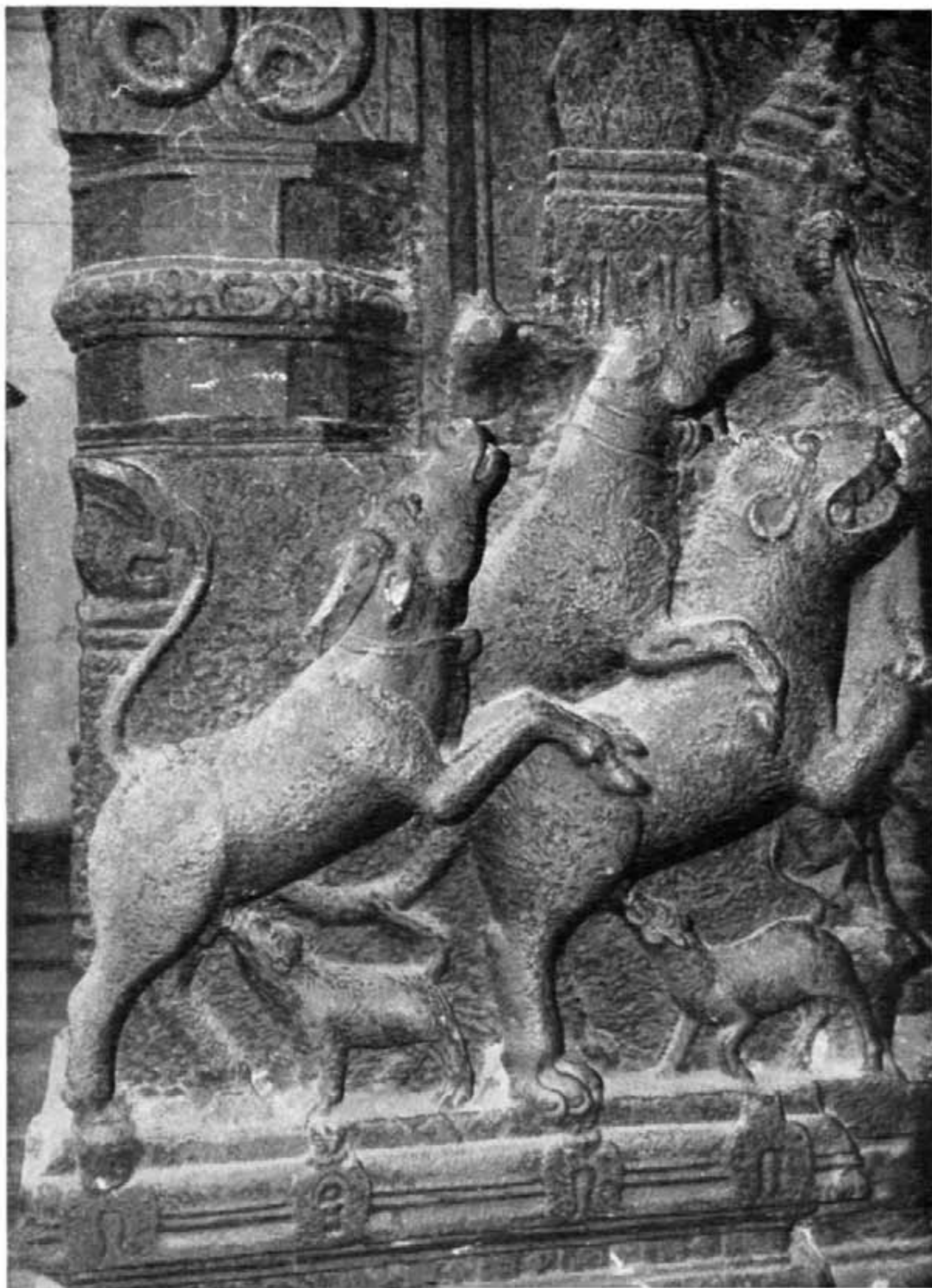


A

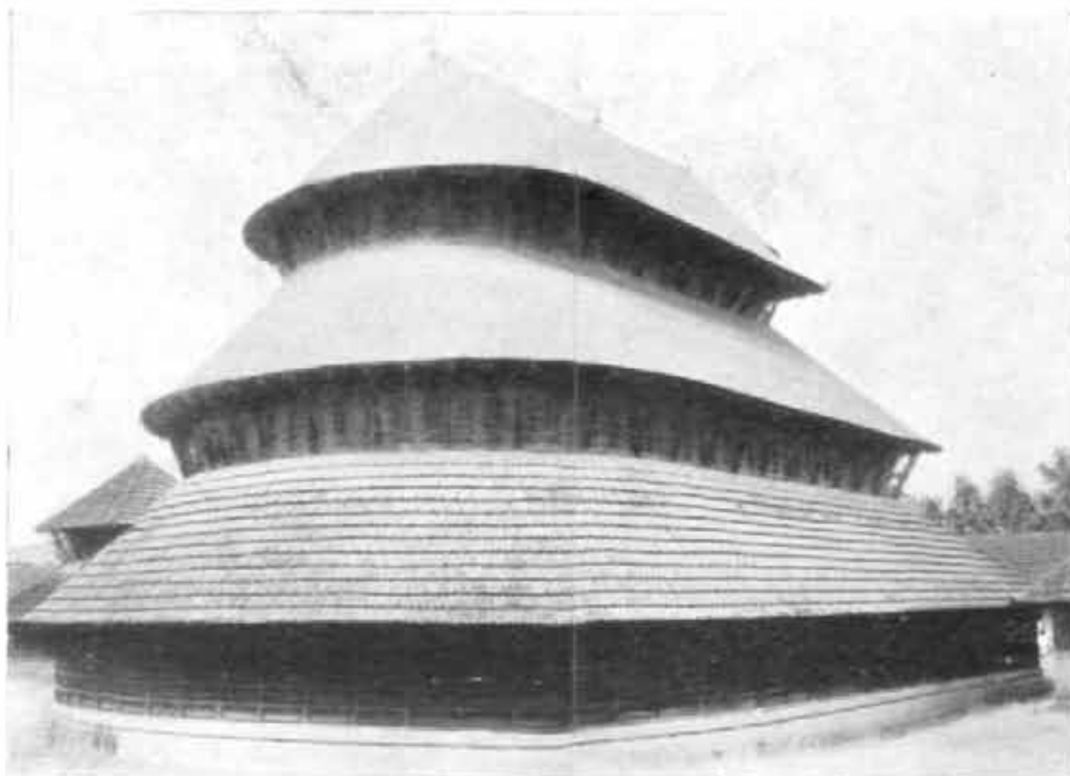


B

A. *Munjara: a view of the superstructure of the Siva temple;* and B. *Tiruvattar: a view of the main Adikesavaperumal temple.* *See p. 82*



Tiruvattar: carvings on the pillar of Adikesavaperumal temple. *See p. 83*



A



B

A. *Aduru: Mahalingeswara temple, general view; and* B, *Anantapuram: Anantapadmanabhaswami temple, general view.* *See p. 83*



A



B

Anantapuram, Anantapadmanabhaswami temple: A, murals on the shrine wall; and B, stucco image of seated Vishnu in devakostha. *See p. 83*

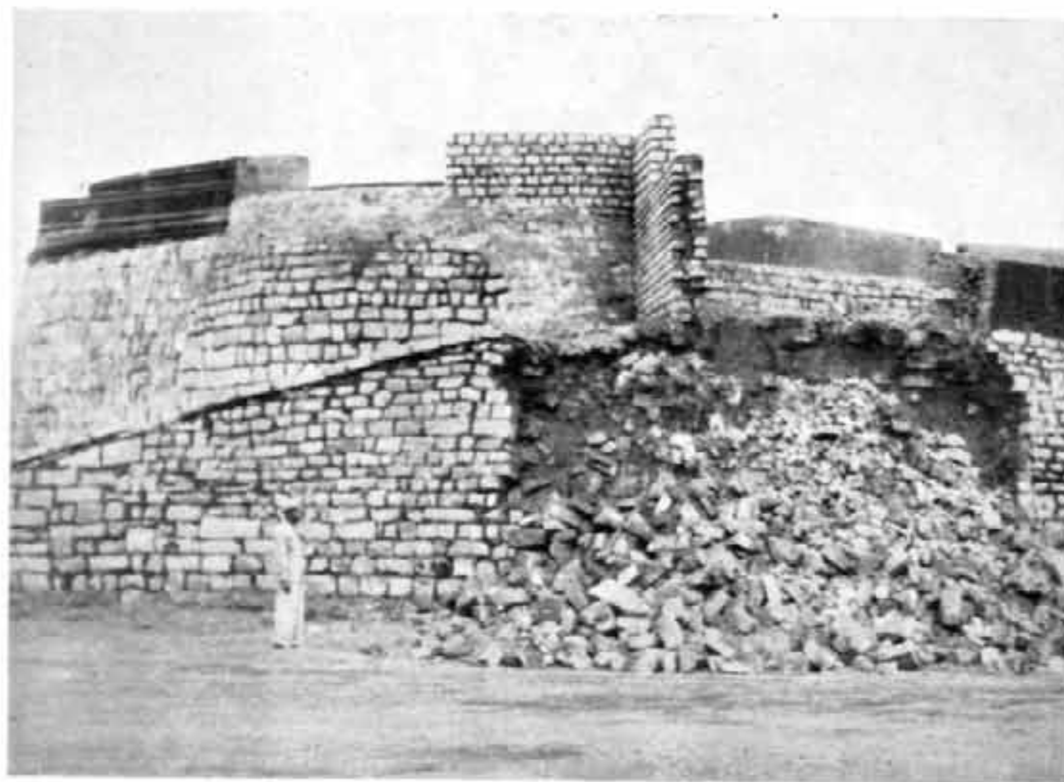


A



B

Siva temple, Garh, District Alwar: A, *before, and* B, *after clearance and conservation.* *See p. 90*

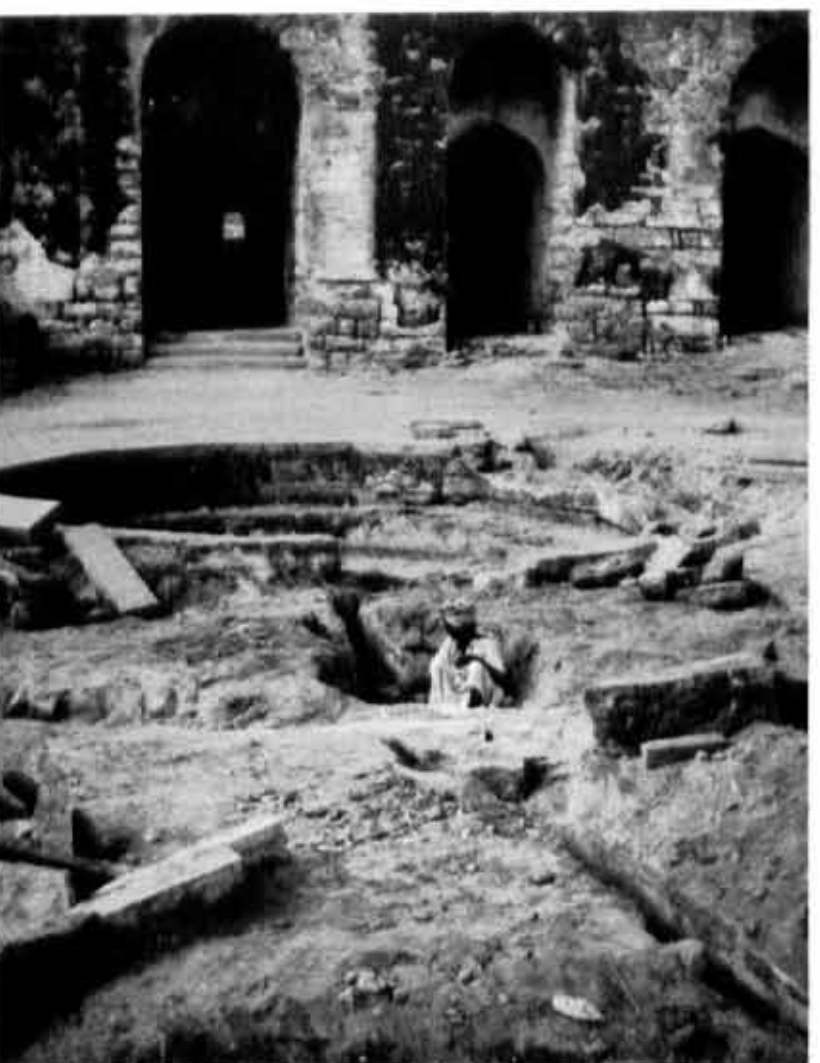


A

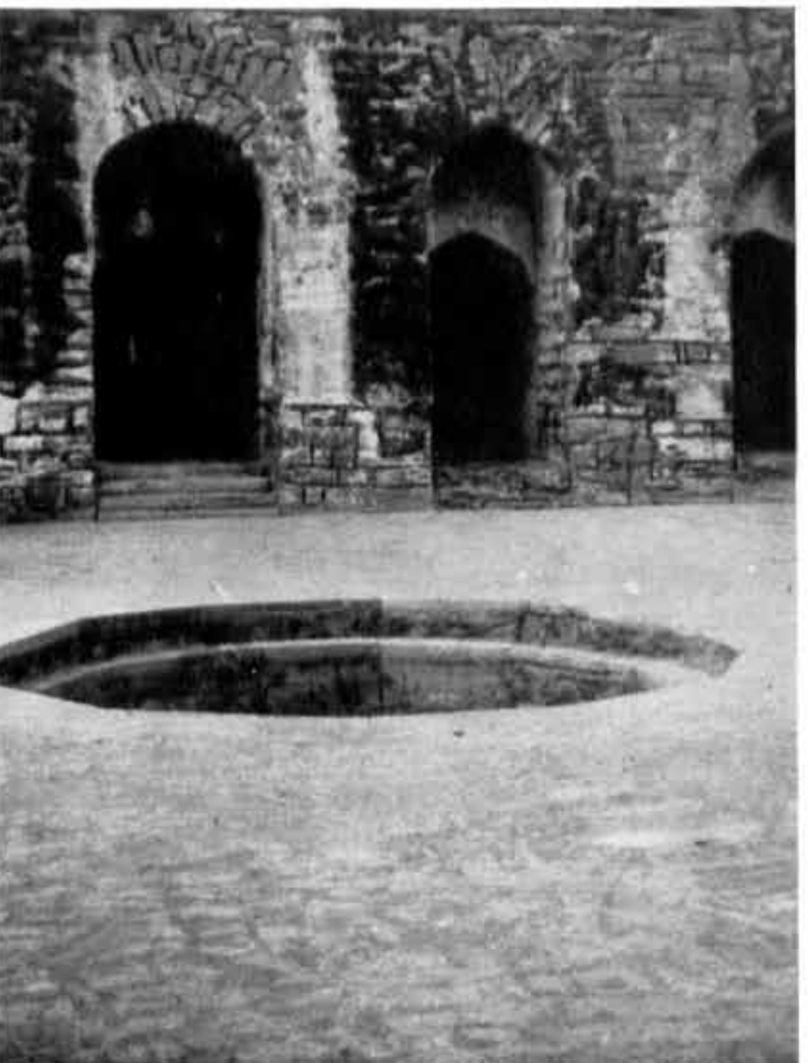


B

Old Dungeon, Fort, Bangalore: A, *before, and* B, *after conservation.* *See p. 91*

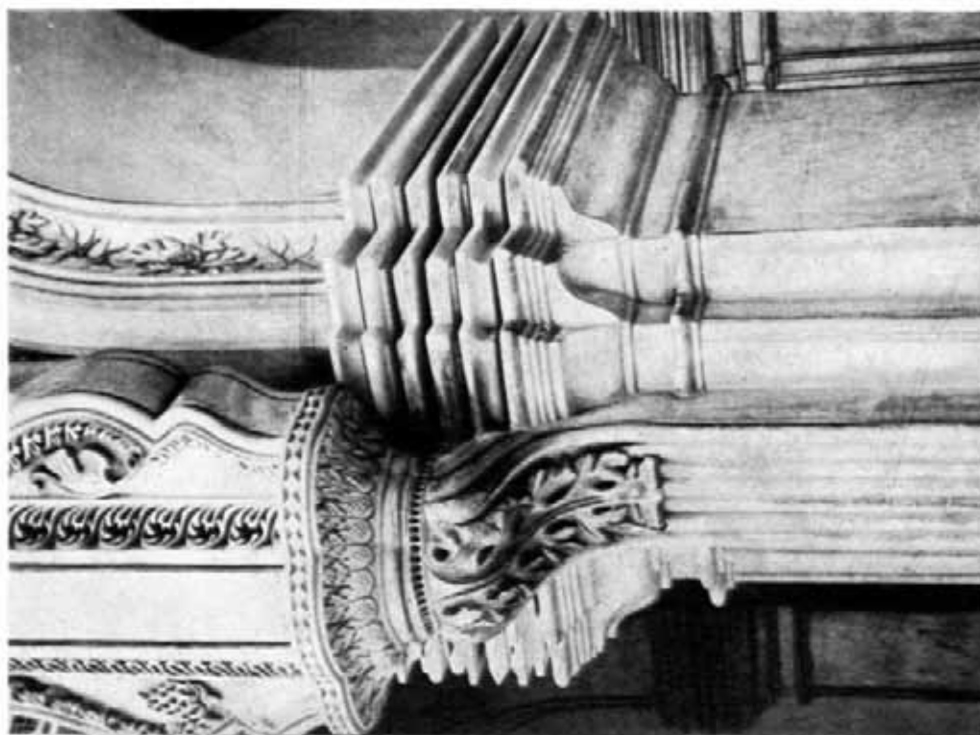


A

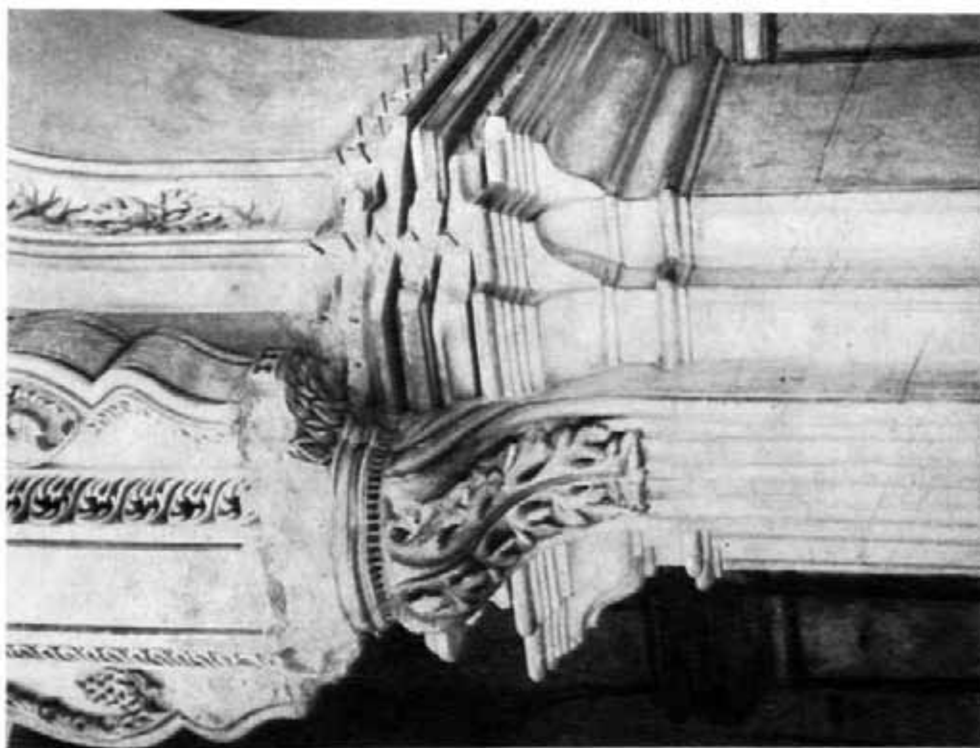


B

Fort, Golconda, District Hyderabad: underground cisterns, A, during, and B, after clearance. *See p. 94*



B



A

Charminar, Hyderabad: mouldings in the minar, A, *before, and* B, *after restoration.* *See p. 94*

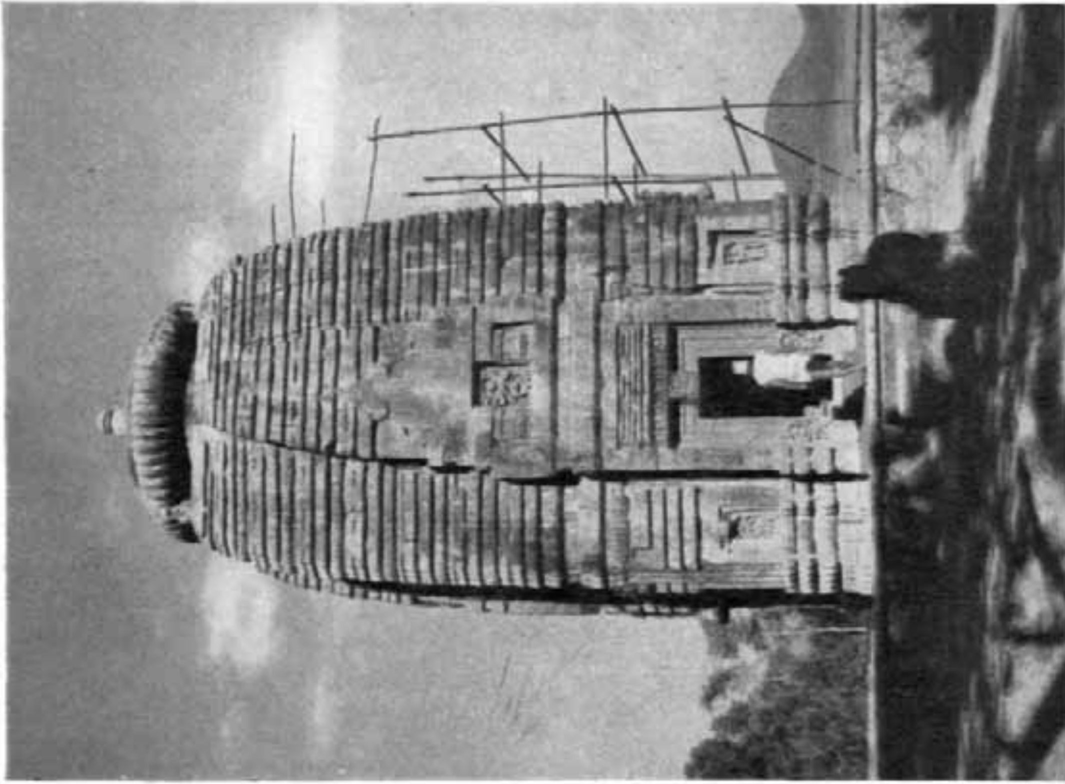


A

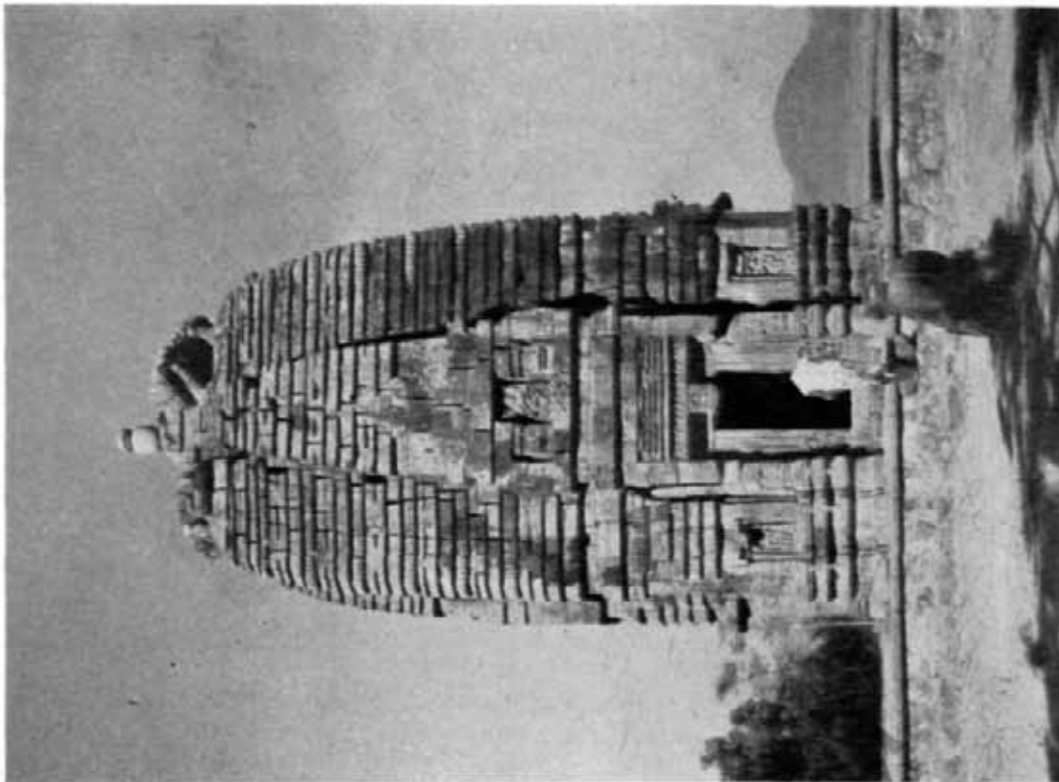


B

Jammidoddi, Vijayawada, District Krishna: pillared mandapa, A, *during, and* B, *after restoration.* *See p. 94*



B



A

Somesvara Temple, Mukhalingam, District Srikakulam: sikhara of the temple, A, during, and B, after repairs. *See p. 95*



Dwarkadhish Temple, Dwarka, District Jamnagar, showing the damaged pillars which are being partially restored. *See p. 95*



A



B

Cheleshwar temple, Ghumli, District Jamnagar: A, *before, and* B, *after conservation.* *See p. 98*



A



B

Bamiyan, Afghanistan: A, general view of the Small Buddha shrine along with other caves, and B, close view of one of the drains constructed on top of the rock to divert water. *See p. 103*



A



B

Bamiyan, Afghanistan: damaged portion of the feet of Small Buddha, A, *before, and* B, *after repairs.*
See p. 103



B



A

Bamiyan, Afghanistan: wall behind the feet of the Small Buddha, A, before, and B, after repairs. *See p.* 103



A



B

Bamiyan, Afghanistan: west wall in front of Cave 2, A, *before, and* B, *after repairs.* *See p. 103*



A



B

Bamiyan, Afghanistan: cracked east wall in front of Cave, 4. A, before, and B, after conservation. *See p. 103*